

Enhancing U.S. Army Special Forces:

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RESEARCH & APPLICATIONS

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Enhancing U.S. Army Special Forces: Research and Applications



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and
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Editors

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14. ABSTRACT (Maximum 200 words) This report summarizes manpower, personnel, and training research conducted by the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) in support of U.S. Army Special Forces since 1990. One purpose of the report is to provide a comprehensive summary of the major issues, approaches, and accomplishments of our cooperative research program with the U.S. Army John F. Kennedy Special Warfare Center and School and other key components of the Special Forces community. Another purpose is to offer a broader interpretation of the research in terms of its application and meaningfulness for the rest of the Army. The report gives a brief overview of research conducted to benefit Special Forces recruitment, selection, assessment, training, and soldiers in the field. At the end of each of these major sections are recommendations for Special Forces and for the Army, based on what we learned from the research. The report concludes with a discussion of future research directions.					
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Foreword

The mission of the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) is to conduct personnel performance and training research in support of Army goals. In keeping with that mission, ARI established a research team in 1990 to address the needs and concerns of Special Forces (SF), a growing Army element and potential Army testbed for innovative methods and concepts. Since 1990, many ARI researchers served on the SF team or otherwise contributed significantly to the work reported here. They include Nora Kinzer Stewart, Paul Gade, Michael Sanders, T. Owen Jacobs, Michael Rumsey, Martha Lappin, Fred Mael, Scott Graham, Elizabeth Brady, Michelle Zazanis, Robert Kilcullen, Marisa Diana, Wayne Evans, Leonard White, and Judith Brooks. Many other scientists, research fellows, and contractor personnel also provided support.

A 1991 Memorandum of Agreement between ARI and U.S. Army Special Operations Command established an ARI Scientific Research Office at Fort Bragg, NC and a formal program of cooperative research. Over the years, ARI has worked in partnership with the U.S. Army John F. Kennedy Special Warfare Center and School, U.S. Army Special Forces Command (Airborne), U.S. Special Operations Command, and others to define issues and develop useful products. The result of our combined research efforts has been a large body of findings and practical tools for enhancing SF recruitment, selection, assessment, training, and field performance. Many of the findings were presented as a technology demonstration at Fort Bragg, NC in September 1996. In this report, we summarize the highlights of this research and development program with a view toward their implications for the Army.

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Technical Director

Edgar M. Johnson
Director

Executive Summary

ENHANCING U.S. ARMY SPECIAL FORCES: RESEARCH AND APPLICATIONS

Requirement:

The requirement was to summarize the manpower, personnel, and training research conducted by the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) in support of U.S. Army Special Forces (SF) from 1990-1997. The purposes of this report were to: (1) provide a comprehensive overview of the research, and (2) identify specific implications of the research for the broader Army.

Procedure:

Researchers reviewed and summarized major SF research efforts conducted in five key areas: recruitment and manpower planning, selection measures, assessment, training, and soldiers in the field. The report was divided into chapters corresponding to these major areas of research. Each chapter presented the major research questions, approaches, and findings. The authors concluded each chapter with recommendations for SF and for the Army, based on what was learned from the research. Thoughts on future research directions were included in a final chapter.

Findings:

Recruitment and Manpower Planning. The research approaches and solutions discussed in this chapter addressed getting the right number of soldiers, getting the right kinds of soldiers, and attracting and preparing soldiers for SF. Significant outcomes of this research were the development of a research-oriented personnel database; identification of factors that impact the flow of personnel through the SF pipeline; impact analyses that informed policy decisions; analysis of minority representation in SF; and the development and evaluation of physical training and career information handbooks to support soldier preparation.

Selection Measures. This chapter discussed efforts to identify high quality candidates early in the SF pipeline for purposes of selection or prescreening. The authors presented findings on the usefulness of newly available temperament and spatial ability tests as well as pull-up tests for predicting SF selection. They also described research that examined how candidates' background, motivation, spatial/cognitive abilities, and physical fitness predicted successful completion of the selection program. Results demonstrated the critical role of physical fitness for performance in the SF assessment and selection (SFAS) program, and highlighted the potential value of employing selection tests that could measure critical motivational attributes.

Assessment. This chapter discussed the research performed to clarify SFAS assessment, train SFAS assessors, improve peer evaluation systems, monitor the

assessment climate, and evaluate the impact of proposed changes in the assessment process. The major research outcomes included revision of the assessment techniques in SFAS; a training program to improve the reliability and validity of SFAS assessments; new forms to maximize the assessment information obtained from peers; identification of assessment climate characteristics; and data that helped SF make informed decisions about program changes.

Training. Research issues in this chapter pertained to fine tuning the Special Forces Qualification Course (SFQC) and enhancing the development and sustainment of foreign language and cultural communication skills. The major research outcomes discussed in this chapter included recommendations for improved training for 18D medical sergeants and for 18A mission planners; an advanced tutor authoring system for foreign language training; and a templating method for quickly training soldiers in mission-specific cultural communication skills.

Soldiers in the Field. This chapter discussed two lines of research that focused on SF soldiers in the field. One line of research involved measuring effective performance on the job and identifying individual attributes associated with high job performance. Major research outcomes included job analysis findings, the development of performance rating scales, and identification of job performance predictors. The other line of research focused on the organizational climate in SF and implications for force retention. The authors discussed the development and findings of the SF Command Field Survey which "took the pulse" of the force and identified the primary concerns of SF soldiers.

Future Directions. In this final chapter, the authors identified possible directions for future research that would build on the work already accomplished. They discussed the need to integrate information from the different phases of the SF soldier life cycle and offered specific research directions to support screening, assessment, selection, and training. Taking a perspective from the broader Army, the authors also considered how the Army that is envisioned for the future may influence SF and Special Operations Forces (SOF) research directions, as well as benefit from SF research methods and findings.

Utilization of Findings:

The findings from this research have direct benefit to the SF community, which has sponsored the research and implemented several of the research products. The findings can also benefit the larger SOF community and the conventional Army, wherever similar manpower and personnel performance issues exist and need to be addressed.

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Introduction

by Judith E. Brooks

Overview and Purpose

This report pulls together an array of manpower, personnel and training research conducted during 1990-1997 in support of U.S. Army Special Forces (SF). The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) conducted the research, in partnership with the U.S. Army Special Operations Command (USASOC) and other key members of the SF and Army personnel communities. Like most of ARI's research, funding for the SF work was provided primarily through research and development funds from the Assistant Secretary of the Army (Research, Development and Acquisition).

The purpose of this report is twofold. One is to summarize the major SF research issues and accomplishments. Over the past 7 years, ARI has produced many reports, briefings, conference papers, journal articles, information papers, fact sheets, and other products documenting various research approaches and findings. This report provides a comprehensive overview of the major results of the SF research program. The other purpose is to offer a broader interpretation of the results in terms of their meaningfulness for the rest of the Army. Special Forces, in our view, is a

useful testbed for ideas and concepts for the Army. Many of the approaches, models, and solutions developed to address SF concerns about recruitment, manpower planning, assessment, selection, training, and job performance have potential application to the larger Army community. Therefore, part of this report identifies specific implications of the SF research for the broader Army.

Throughout the report, we focus on the program highlights, trying to create an integrated picture of key issues, findings, and conclusions. Readers interested in more information about a particular project may consult the reference section for complete citations of detailed published reports.



Who Should Read This Report and Why?

Members of the SF community will find this report particularly useful, because the research findings are directly relevant to their manpower and personnel issues. Indeed, the research was made possible in large part by the SF community's interest, support, and requests for assistance. Within this community, U.S. Army John F. Kennedy Special Warfare Center and School (USAJFKSWCS), responsible for SF personnel assessment and training, has contributed substantially to the research program and has benefited most directly from its products. This report describes what ARI and USAJFKSWCS have done collaboratively since 1990, why we did it, and the important outcomes. U.S. Army SF Command (Airborne) (USASFC(A)) and SF active duty unit commanders, who provided expertise and data collection support for several projects, likewise may be interested in this broader picture of the research purposes, findings, and conclusions. Policy makers, including those within USASOC and U.S. Special Operations Command (USSOCOM), will find this report relevant, since it demonstrates how the research has been or could be used to inform policy decisions affecting Special Operations personnel.

We also recommend this report to the larger Army community. Army leaders who are facing issues similar to those that prompted the SF work have an opportunity to take advantage of what we have learned in SF. Though small in absolute numbers, SF

can be thought of as a microcosm of the Army. Importantly, the manpower and personnel issues in SF--issues such as recruitment, selection, assignment to a military occupational specialty (MOS), training, job performance, and attrition from the force--tend to mirror the kinds of issues that face the rest of the Army.

Throughout this report, we propose links between the SF research and applications to other Army elements.

Last, because this program has been particularly successful, other applied researchers may be interested in our research approaches. Over the past several years, we have applied scientific approaches to several practical problems within budgetary and time constraints, and within an environment characterized by frequent change. We attribute much of the program's success to a close working relationship with our research sponsors. The research described in this report reflects the user-oriented focus that has proven so effective in producing valued results.

Background Information on SF

A few introductory remarks are offered for readers not familiar with SF. Special Forces, commonly referred to as the Green Berets, are the largest element of the Army's SOF. Special Forces are infantry oriented, combat arms units with special purpose missions and characteristics. They are capable of rapid response to various contingencies throughout the world, operating independently or in coordination with conventional forces. SF differ from conventional forces in

that they are specially organized, trained, and equipped to achieve military, political, economic, or psychological objectives by unconventional means. The primary SF missions are unconventional warfare, foreign internal defense, direct action, special reconnaissance, and counterterrorism. SF also participate in collateral activities, including humanitarian assistance, security assistance, antiterrorism, counternarcotics, and search and rescue.

An important distinction between SF and conventional Army forces is the regional orientation of SF. Most active duty soldiers in SF are assigned to one of five regionally-oriented SF Groups. They must learn language and area orientation skills that allow them to work closely with the indigenous people in the Group's area of operations. In general, soldiers in SF also are expected to exercise more initiative, self reliance, and flexibility compared to conventional soldiers. Moreover, due to political and other risks involved, the penalties for mission failure in SF are relatively high.

All SF personnel are male volunteers, and most are recruited from within the Army active duty force. The typical applicant is a 26-year old sergeant who has been in the Army about 5 years. Most officer applicants are captains. All applicants must meet specified medical, physical fitness, and aptitude requirements before entering the SF assessment and selection (SFAS) program. If selected, they attend SF qualification training. Successful enlisted trainees

become qualified in one of four MOS: weapons, engineering, medical, or communication sergeants. Following language training, the first SF job assignment is usually to a 12-man Operational Detachment-Alpha (ODA).

History of the Research Program

ARI's most recent collaboration with the SOF community began in the late 1980s when ARI received a request to analyze selection and assessment of soldiers for special SOF missions. At about the same time, the commander of USAJFKSWCS established a new assessment and selection program to identify soldiers most suitable for SF training. The request for ARI support in developing this program stimulated a partnership to use scientific theory and methods to select and train soldiers for SF. In 1990, ARI began conducting a formal research needs analysis to identify important manpower and personnel issues in SF that could be addressed through research (Brooks, 1991; Brooks, 1992). At that time, ARI researchers were already helping USAJFKSWCS develop a personnel database to answer immediate questions about the characteristics and success rates of candidates attending the SFAS program. Analyses of the available data and interviews with leaders and staff at USAJFKSWCS suggested how research might lead to improved personnel flow and enhanced performance.

The needs analysis yielded a framework that helped organize areas

of SF personnel development needing enhancement. Additionally, the framework encouraged a systems approach to research by showing how modifications in one area of SF personnel development could impact other areas. The needs analysis findings helped establish a foundation for building a research program. Then, a 1991 Memorandum of Agreement between USASOC and ARI created a Scientific Research Office at Fort Bragg, NC, enabling ARI to more fully support the SF community. A strong research partnership had begun.

Over the next several years, ARI refined the research questions and applied scientific methods to develop answers and products (see Brooks, 1995). In September 1996, ARI produced a technology demonstration to describe the scope and content of the research program, and the technologies developed to enhance aspects of SF personnel recruitment, assessment, training, and field performance. Members of the SF community, including the Commanding Generals of USASOC and USASFC(A), attended the technology demonstration held at Fort Bragg. The demon-

stration consisted of five display areas corresponding to five major research domains. The format involved brief oral presentations supported by video, audio, and graphic presentations, hands-on booklets and forms, and fact sheets. Zazanis (1997) gives an overview of the technology demonstration and discusses how it was different from demonstrations typical of hardware-oriented research products.

How the Remainder of the Report is Organized

Like the technology demonstration, this document serves to summarize the SF program accomplishments to date. It has the added advantages, though, of being more comprehensive and accessible to a larger audience. Consistent with the technology demonstration, the remainder of this report is organized by five research focus areas in SF, as illustrated in Figure 1.1. A review of the research findings in each area is followed by recommendations for both the SF community and the broader Army. The report concludes with a discussion of future research directions.

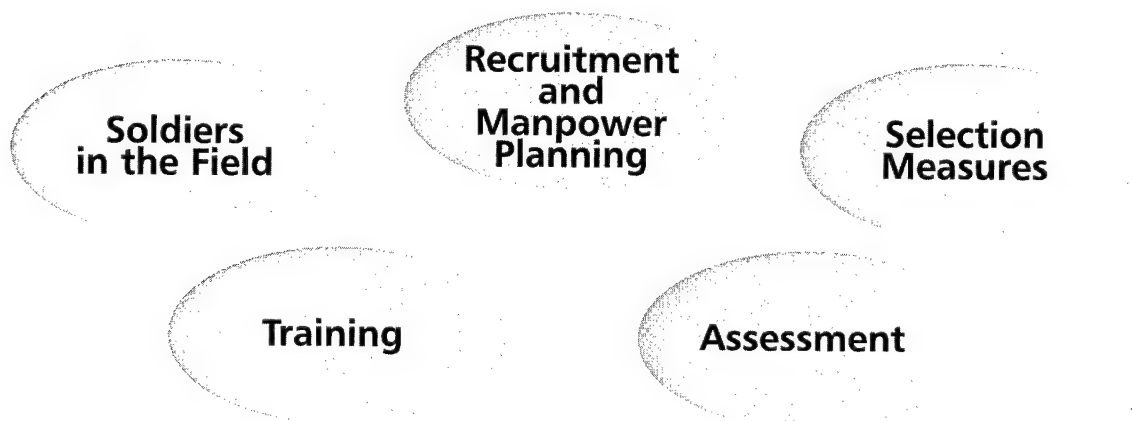


Figure 1.1.
Research focus
areas in Special
Forces.

Special Forces Recruitment and Manpower Planning

by Judith E. Brooks

The road to SF starts with application to the 3-week SFAS program. SF recruiters seek active duty soldiers who meet the eligibility requirements for this program. Recruiters attract and inform soldiers, conduct prequalification testing, and schedule qualified applicants for SFAS at Fort Bragg.

Enlisted candidates who successfully complete SFAS are assigned to one of four SF MOS and are scheduled for qualification training. The Special Forces Qualification Course (SFQC), also conducted at Fort Bragg, is about 24 weeks long. Soldiers in two of the SF job specialties (medical sergeant and communication sergeant), however, must attend additional job-specific training, and therefore have a longer training period. Successful SFQC trainees are informed of their SF Group assignment (and thus their regional orientation) toward the end of the course. They then proceed to appropriate foreign language and intercultural training for an additional 3 to 6 months before their first operational assignment to an ODA.

Most soldiers find the road to SF challenging, and many who apply

to SFAS do not ultimately become SF qualified. From the standpoint of SF recruitment and manpower planning, it is often difficult to ensure the force is adequately filled with qualified men. The key research issues raised in the area of recruitment and manpower planning were:

Researchers found that, on average, it takes about four SFAS recruits to produce one new SF soldier.

☐ How many soldiers should be recruited, assessed, and trained to get the number needed to fill the force?

☐ Who should be targeted for recruiting?

☐ How can SF recruiters attract soldiers and prepare them for success?

This chapter discusses the research approaches and solutions we developed to address these concerns.

Getting the Right Number of Soldiers

SF recruiters and manpower planners know that the essential goal is to get enough men into and through the SF personnel development system to fill the needs of the force. However, monitoring and managing personnel flow has been a

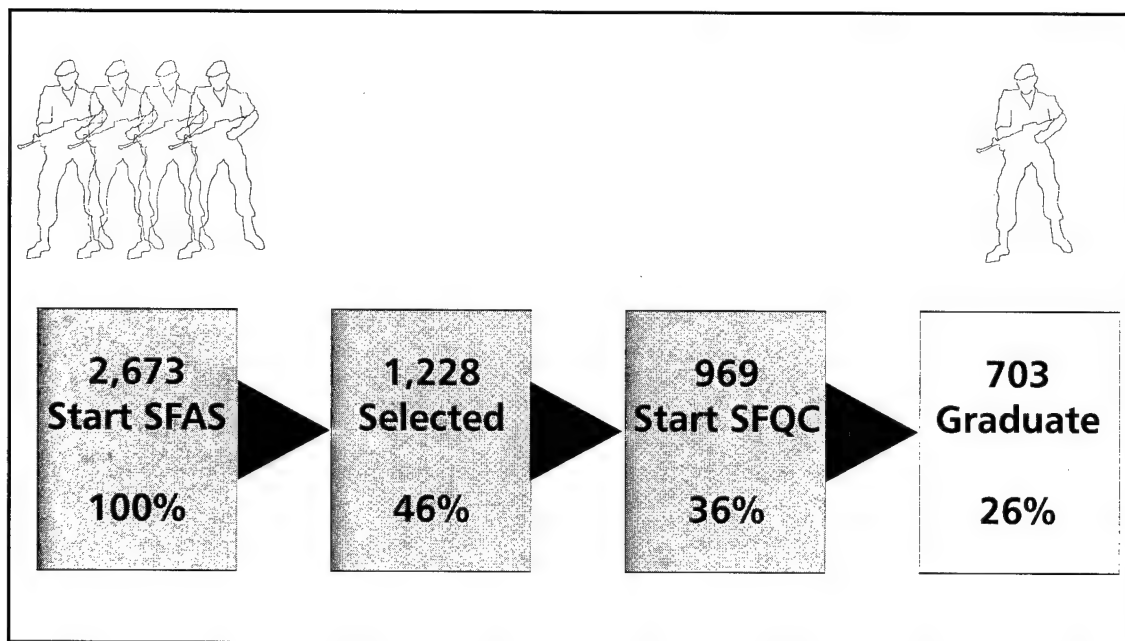


Figure 2.1. The Special Forces pipeline (FY 92-93).

challenge in SF. Before the start of our research program, adequate attrition data from SFAS and from training were not available for SF manpower planning. The time lag from recruit to "tab" was not adequately represented in existing manpower models. Moreover, there was no systematic method for setting recruitment missions.

To support manpower planning, researchers created a personnel database to track soldiers through the SF pipeline. The pipeline reflects the multistage process that starts with recruitment for SFAS and ends with the soldier's graduation from the SFQC. The database allowed analyses of attrition over time, as soldiers moved through the system. Database development initially focused on information available from SFAS, including soldier background and SFAS outcome data, and reasons for non-selection. Researchers subsequently developed an SFQC database containing training outcome and

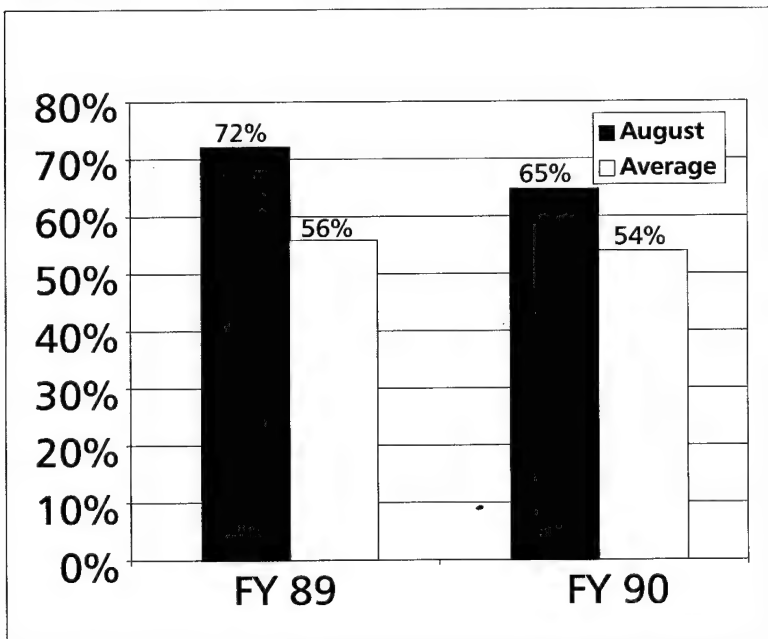
administrative data, including recycle information. Eventually, the SFAS and SFQC databases were linked, providing the longitudinal data needed to systematically document attrition in the pipeline, both for individual soldiers and for classes (Diana, Teplitzky, & Zazanis, 1994, 1995; Zazanis, Diana, & Teplitzky, 1994; Zazanis, Teplitzky, & Diana, 1994).

Researchers found that, on average, it takes about four SFAS recruits to produce one new SF soldier. Figure 2.1 shows an example of the number of entering candidates still in the system after each major stage of the selection and training process. Of the 2,673 active duty enlisted candidates who started SFAS in FY 92-93, 703 graduated from the SFQC, resulting in an overall graduation rate of 26%.

Early in the research program, SFAS attrition analyses played a key role in describing personnel flow through the SF pipeline. Analyses of

candidates in the system since 1989 showed that the select rate was variable, depending on season, weather, candidate demographics, and even random or unplanned events. For example, researchers observed that events such as Desert Shield/Storm indirectly affected select rates by reducing the time soldiers had to prepare for SFAS. A more typical example, though, was the seasonal effect on SFAS select rates. SFAS classes scheduled in the hot summer months yielded fewer graduates compared to classes scheduled at other times of the year (see Figure 2.2). The attrition analyses also showed that the rank and military background of candidates were related in systematic ways to select rates. In general, soldiers with less maturity and less combat arms experience did not succeed as often as higher ranking soldiers from a combat arms MOS. We will discuss the relationship between candidates' experience and SFAS success at greater length in a later section.

Figure 2.2.
Attrition from
SFAS: Seasonal
effects.



Knowing that these patterns and relationships exist helps program managers anticipate the likely impacts that certain variations will have on the select rate for an incoming SFAS class. For example, if an incoming class contains an unusually high number of candidates at the lowest eligible rank (E4), one can reasonably predict a lower than average select rate for the class overall. The information also helps SFAS program managers explain fluctuations in attrition, such as a sudden drop or increase in the select rate. When SF senior leaders ask about such fluctuations, program managers are able to quickly key in on the contributing factors more efficiently because of documented relationships between certain variables and SFAS outcomes.

The database also allowed us to assess the impact of proposed or scheduled policy changes on the flow of personnel through the pipeline. For example, we conducted analyses to inform policy decisions about the participation of prior service soldiers in SFAS (Brady & Brooks, 1993). At a time when SF recruiting missions were dramatically increasing, U.S. Army Recruiting Command (USAREC) established the SF prior service program to expand the eligible pool of soldiers. Under this program, prior service soldiers who separated from any of the armed services, and met certain qualifications, were eligible for incentives to enlist in SF. When the SF expansion period ended and recruiting missions fell, USAJFKSWCS suggested imposing more stringent prerequisites for prior service soldiers. To evaluate the potential impact, ARI

analyzed data from prior service and other candidates who had participated in five of the most recent SFAS classes. Researchers examined how the restrictions would have impacted the market of eligible prior service candidates and determined whether the restrictions would, as intended, have increased success rates in SFAS. The results showed that the proposed restrictions would have eliminated more than half of the prior service candidates and thus would have substantially reduced the number of graduates from those classes. Only one of the three restrictions would have resulted in higher selection rates. USAJFKSWCS and USAREC staff were able to consider these data

when making their final recommendations regarding the SF prior service program.

At about the same time, ARI analyzed three years of SFAS data to illustrate how more stringent physical performance requirements would affect the SF recruiting market and SFAS select rates (Teplitzky, 1991). In the early 1990s, USAJFKSWCS staff were considering raising the current Army Physical Fitness Test (APFT) score prerequisites as well as the performance standards for the ruckmarch, an evaluation event that occurs early in the SFAS program. ARI researchers performed correlational and cut-off analyses to project

**Projected Outcomes with Higher APFT Cut-off Scores
Based on SFAS FY 91 Data**

IF SF Accepts only candidates with APFT scores of 220 or more:

Costs

- ☐ 31% of those excluded would have been successful
- ☐ SFAS produces 13% fewer soldiers for training

Benefits

- ☐ 51% of those assessed would be successful
- ☐ SFAS assesses 20% fewer candidates

IF SF Accepts only candidates with APFT scores of 230 or more:

Costs

- ☐ 35% of those excluded would have been successful
- ☐ SFAS produces 30% fewer soldiers for training

Benefits

- ☐ 55% of those assessed would be successful
- ☐ SFAS assesses 41% fewer candidates

Table 2.1. Potential impact of raising physical fitness standards:
An example

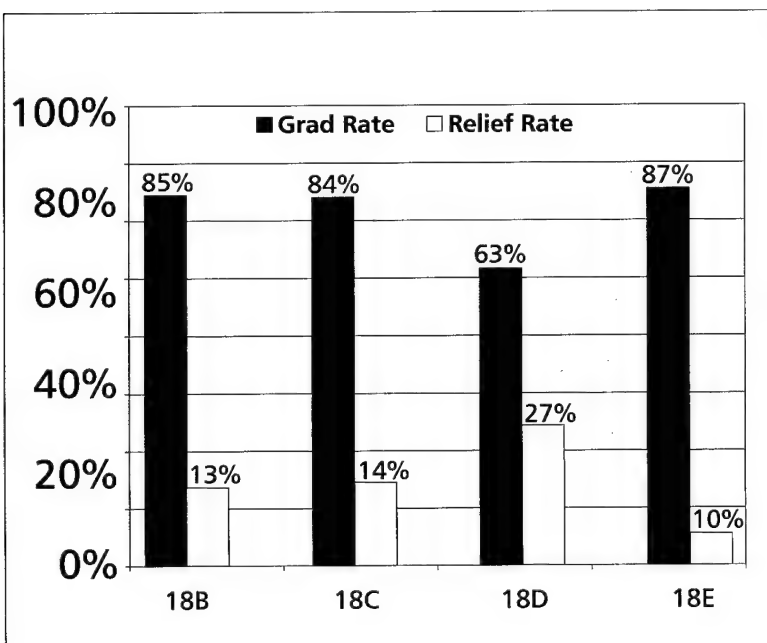
the outcomes of higher APFT cut-off scores and different ruckmarch cut-off scores. Using the results, such as those illustrated in Table 2.1, researchers showed how different changes could impact the flow of personnel through SFAS.

USAJFKSWCS also requested assistance when considering a change in aptitude prerequisites. Like many military schools, USAJFKSWCS uses Armed Services Vocational Aptitude Battery (ASVAB) composites (e.g., General Technical (GT) scores) as prerequisites for program participation. They also rely on ASVAB composites to help assign enlisted soldiers to MOS. USAJFKSWCS requested help in examining the effectiveness of these and the potential benefits and costs of different options. Researchers, through analyses using the personnel databases, identified the field artillery (FA) composite as a promising alternative for supplementing the information available through

GT scores. Preliminary analyses showed that FA was related to training success and that use of an FA prerequisite (compared to other composites) would exclude the fewest minority candidates. Later statistical analyses, using data from almost 2,000 SFQC students, helped further evaluate the practical consequences of using FA scores as an additional cognitive aptitude prerequisite (Lappin, 1996). For each of several possible FA cut-off scores, researchers identified expected costs and benefits in terms of number of graduates lost, recruitment resource requirements, graduation rates, academic recycle rates, and relief rates. ARI recommended specific FA cut-offs that would be reasonable for USAJFKSWCS to use within a context of scarce training resources and an adequate applicant pool. The research findings helped policy makers make informed decisions about SF prerequisite changes.

Other ARI attrition analyses that focused on the SFQC described training attrition and recycle rates over time and across SF MOS for selected candidates (Diana, Teplitzky, & Zazanis, 1995). ARI tracked individual candidates selected from SFAS classes conducted between FY 89 and FY 91. The analyses examined trends over time in SFQC attrition rates, soldier characteristics related to training success, and how graduation/attrition and recycle rates varied across SF MOS (see Figure 2.3). Results showed medical sergeant (18D) training to be the most difficult to complete, especially for lower ranking soldiers. The data also revealed a down-

Figure 2.3. SFQC graduation rates across MOS for SFAS FY 89-91 selectees.



ward trend in graduation rates over this period, a decline especially pronounced for the 18D training track. Generally speaking, soldiers from combat arms were more likely to succeed in the SFQC. Complementary analyses based on SFQC class data examined trends in the composition and outcomes of SFQC classes over time and across MOS (see Zazanis, Teplitzky, & Diana, 1994). These analyses also provided specific information on attrition from different phases of the course (i.e., the field versus MOS training phase).

As shown in Figure 2.4, ARI's database and framework for looking at SF personnel flow, coupled with SFAS and SFQC attrition analyses findings, contributed to the development of a career management field (CMF) 18 manpower model and a new systems approach to SF force management. Using historical data, ARI helped identify the approximate number of soldiers that could be expected to drop out at each stage of the pipeline. For example, the SFAS data suggested that, as a conservative estimate, one could expect 60% attrition. About 10% of the soldiers selected for training do not show up for the qualification course. That is represented in the model, as is the typical 25% attrition rate for SFQC trainees. Added to the historical data are the ARI analyses showing how certain variables, such as soldier characteristics, tend to affect attrition rates. The attrition analyses furthermore allowed us to document some tradeoffs in targeting and excluding various recruit groups. Finally, we recognized and stressed the impor-

tance of considering SF and Army-wide relevant policy changes that will affect the SF market and the characteristics of soldiers entering the SF pipeline. USAJFKSWCS and USAREC staff have used the manpower model and the new systems approach to SF force management to develop SF recruiting missions. This approach has improved their capability to anticipate manpower shortages and overstrengths rather than simply react to their occurrence.

Getting the Right Kinds of Soldiers

One way to help ensure sufficient numbers of SF soldiers is to target and recruit the kinds of soldiers who are most likely to succeed. Moreover, by effectively recruiting soldiers with characteristics and backgrounds highly suited for SF, the number of recruits needed would decrease, since more of them would graduate.

Figure 2.4.
ARI input to the
CMF 18 Manpower
Model.

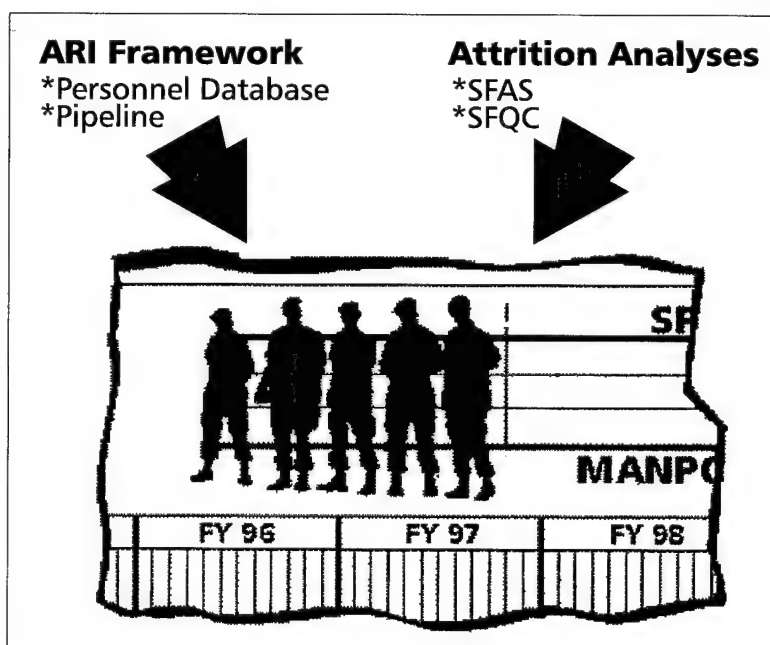


Table 2.2.
Outcomes for
SFAS FY 92-93
candidates.

Recruit Type	Selected SFAS	Attended SFQC	Graduated SFQC
All Rangers	80%	68%	58%
11B NCO	57%	50%	40%
Mixed	44%	35%	23%
Non-Combat Arms, Specialist/Corporal	35%	25%	15%

Analyses of the personnel database showed that some recruits had a tremendous advantage in SF assessment and training because of their prior military training and experience. By tracking soldiers from different military backgrounds and their relative success rates, we showed the importance of military experience to success at each stage of SF personnel development.

Table 2.2 categorizes SFAS FY 92-93 candidates based on their probability for success: (1) Rangers, 10% of the SFAS FY 92-93 population, (2) Infantry non-commissioned officers (NCOs), 10% of the population, (3) mixed group (non-Infantry NCOs and Combat Arms Specialists and Corporals), 60% of the population, and (4) Non-Combat Arms Specialists and Corporals, 20% of the population. Clearly, Ranger-qualified soldiers were the most successful group, with 58% of all Rangers graduating from the SFQC. In the least experienced group (Non-Combat Arms Specialists and Corporals), only 15% graduated. The data therefore suggested that Rangers and other

combat arms soldiers with experience and maturity be targeted for recruiting.

The SF community also identified a need for recruiting efforts directed at minority soldiers, because minority participation in SF was relatively low. USAJFKSWCS asked ARI to investigate the reasons for this disparity as a first step toward increasing the participation of minorities. ARI identified critical steps in the SF qualification process and systematically examined factors at each step that might restrict the flow of minorities into SF. The research focused particularly on African Americans and the active duty enlisted population, drawing research samples from the SF personnel database and the Army enlisted master file.

The results suggested that the racial disparity was largely explained by the ASVAB aptitude score prerequisites, swimming proficiency, and the number of African Americans from combat arms backgrounds (Teplitzky, 1992). The GT criterion in place at that time (minimum score of

110) eliminated almost twice as many African Americans as it did Caucasians. Therefore, a relatively smaller proportion of minorities was eligible to apply to the SFAS program. The 50-meter swim test required during SFAS also tended to screen out a disproportionately high number of African Americans¹. For example, during FY 91, over six times as many African Americans failed the test as Caucasians. Researchers also observed that African Americans were less likely than Caucasians to graduate from the SFQC, a finding explainable by the fact that fewer African Americans were from combat arms backgrounds.

These kinds of systematic analyses illuminated possible reasons for minority underrepresentation and offered a basis for developing positive initiatives to address the concern. In the Fall of 1996, the Commanding General of USAJFKSWCS made two changes with respect to these issues that served to increase the pool of soldiers eligible to attend SFAS. First, he administered a waiver of the GT requirement, a waiver that had existed periodically during previous years. Soldiers were then eligible to attend with a GT score of 100. Second, he shifted the requirement for successful completion of the swim test from SFAS to SFQC. Shifting this requirement would provide non-swimmers additional time to learn to swim, and additional motivation to meet this proficiency requirement, since they already successfully completed SFAS. Because the events in the SFAS pro-

gram did not require swimming proficiency, this change did not impact the assessments made in SFAS.

How to Attract and Prepare Soldiers

Several ARI projects focused on how to effectively attract and prepare the kinds of soldiers needed in SF. As discussed in the previous section, USAJFKSWCS took the lead in developing and implementing practical initiatives to improve minority participation. In addition to the changes already described, USAJFKSWCS's Commanding General established an Advisory Group on Minority Recruiting, comprised of individuals from USAJFKSWCS, USAREC, and ARI. Members of this group began working together to develop new marketing strategies to encourage qualified African Americans to consider a career in SF.

One of ARI's most successful recruitment projects focused on preparing soldiers for the physical demands of assessment. During the early years of the SFAS program, USAJFKSWCS staff observed that many entering candidates were physically unprepared. Many soldiers failed the APFT test during in-processing, and others demonstrated poor ruckmarch performance during the early phase of assessment. As a result, SFAS attrition rates were high. These "failures" cost the Army an estimated \$182,000 in FY 90 and eliminated soldiers who may otherwise have possessed the attributes and

¹The SFAS swim test findings were consistent with other ARI studies that have shown large differences Army-wide between Caucasians and African Americans in the ability to swim.

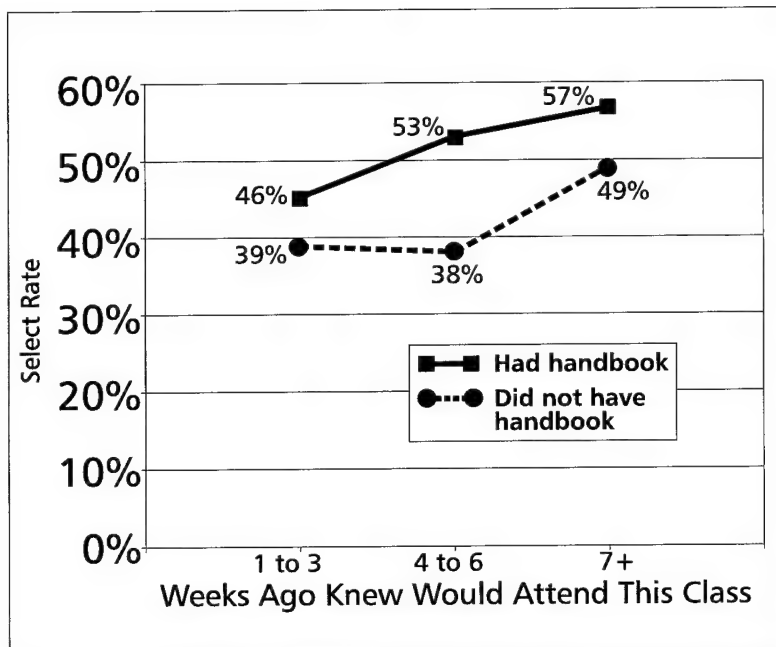
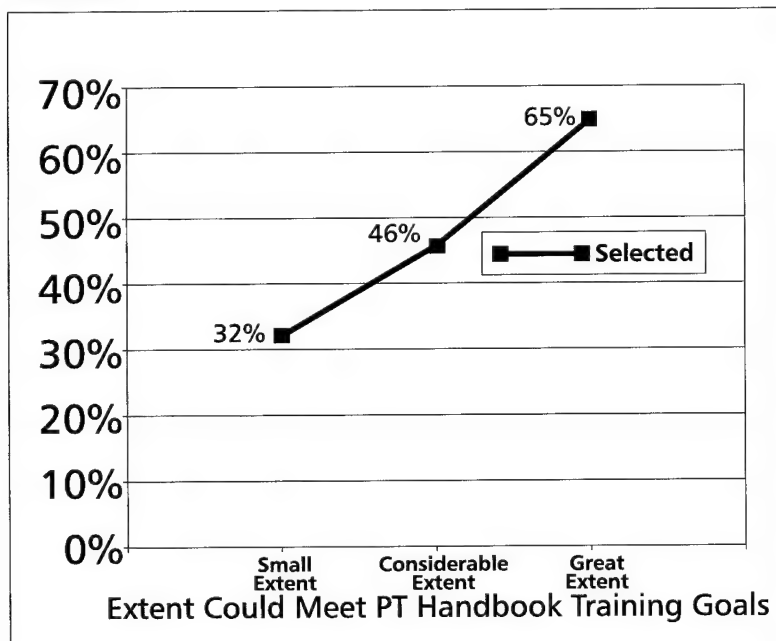


Figure 2.5. SFAS select rate as a function of having the PT Handbook and advance notice.

skills needed in SF. In response, SF recruiters, with support from ARI, developed a physical training handbook for soldiers who were scheduled for SFAS. The handbook emphasized the importance of pre-conditioning, encouraged soldiers to set appropriate personal training goals, and outlined a suggested 5-week physical training regimen.

Figure 2.6. SFAS selection as a function of meeting training goals in the PT Handbook.



Shortly after the first handbooks were distributed, ARI collected survey and performance data on SFAS candidates to evaluate the handbook's impact (Teplitzky, 1993). Data analyses showed that soldiers who received the handbook and knew which SFAS class they were attending, in time to follow the program (about 4 weeks prior to SFAS), had a decided advantage in the assessment program. Figure 2.5 shows that those who received the handbook were 7% to 15% more likely to be selected. The effect was strongest for those who had advance notice of the class they would be attending. As shown in Figure 2.6, soldiers who said they could meet the training goals in the handbook were about twice as successful as those who reported for SFAS knowing they were poorly prepared. SF recruiters have since taken the lead in ensuring that all interested recruits use the handbook to prepare for SFAS. Recruits are more aware of the need for pre-conditioning and for having adequate time to prepare before reporting to SFAS.

An ARI study of SF recruiting suggested the need for a second handbook to provide comprehensive, realistic information to soldiers about what to expect in SF (Herd & Brooks, 1993; Herd & Teplitzky, 1992). The recruiting study showed that recruiters, most of whom were not SF qualified, wanted to be able to give soldiers more information about SF. To identify the additional information soldiers needed to make a decision about a possible career in SF, ARI researchers interviewed or surveyed new SF recruits, experienced SF sol-

diers and leaders, and the spouses of SF soldiers.

The interview and survey data suggested that the booklet should include family-related information. As shown in Figure 2.7, 53% of the SFAS candidates surveyed reported considerable or very great concern about the impact SF would have on family life. Researchers therefore designed a prototype handbook, "Thinking About Special Forces? Answers to Your Most Often-Asked Questions," to include information on family separations during deployments, adjustments during deployment transitions, adjustments to team culture, and family support mechanisms. The handbook also addressed MOS and SF Group assignments, the SF qualification process and training sequence, and SF missions.

SF recruiters began distributing the handbook in 1994 to potential recruits to encourage informed decisions about joining SF and to help prepare those who volunteered. ARI researchers collected survey data from recruiters and SFAS recruits to assess and describe handbook implementation, to assess the impact on recruits' commitment to joining SF, and to document ideas for improvement (Brooks, 1994; Brooks & Evans, 1996). Although soldiers who received and read the handbook tended to be collocated with SF units and were already relatively knowledgeable about SF, they were nevertheless provided new and important information that was often used in the decision process. Wives, in par-

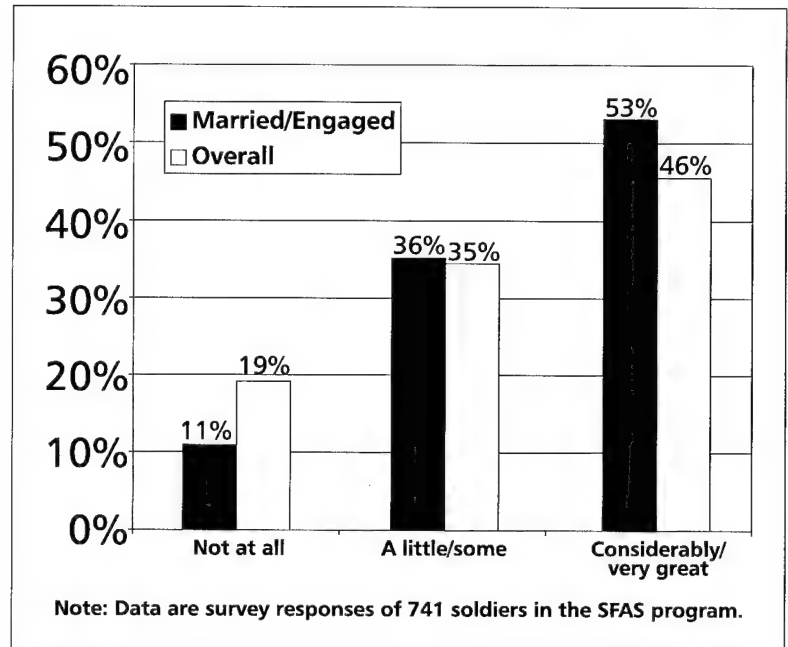


Figure 2.7.
Extent to which
soldiers are
concerned about
the impact of SF
on family life.

ticular, reportedly benefited from the information. These data plus an overall favorable reaction from recruiters and soldiers supported continuation of the handbook as a realistic preview of SF. USAJFKSWCS has since produced a revised, updated version of the booklet and is distributing it to interested soldiers.

Summary and Conclusions

The most critical aspect of ARI's efforts to support SF recruitment and manpower planning was the development of the research-oriented personnel database. It allowed us to measure the flow of soldiers through the SF pipeline and establish an average recruit-to-graduate ratio based on historical data. From the data, researchers were also able to assess how various factors, such as soldiers' prior training and experience, could impact the flow of personnel. These analyses highlighted the need for manpower planners to adjust their projections in view of

Table 2.3.
Adjusting
manpower
projections:
A hypothetical
example.

Projected Requirement for FY 99: 500 New SF Soldiers Question: How many recruits are needed in FY 97 to produce the 500 needed in FY 99?	
<i>If we assume...</i> No change from previous years in the composition of this group of recruits <i>Then...</i> Number of recruits needed: 1,923 Rationale: Historically, the average graduation rate is 26% (.26 x 1,923 = 500)	<i>If we assume...</i> 10% increase in non-Combat Arms Specialists and Corporals and a 5% decrease in both Rangers and Infantry NCOs <i>Then...</i> Number of recruits needed: 2,174 Rationale: The average graduation rate for a group of this composition is 23% (.23 x 2,174 = 500)

changes in market conditions or relevant policy (see Table 2.3 for a hypothetical example). Other analyses of historical data helped predict the impact of specific, proposed policy changes on the SF pipeline. Impact analyses showed how planned or hypothetical changes in recruitment strategies, prerequisites, or assessment standards would affect the SF market, selection or graduation rates, and other outcomes. The findings were made available to decision makers as they evaluated choice alternatives and managed the force.

The database also enhanced the capability of USAJFKSWCS staff to efficiently answer internal questions about personnel flow, such as current selection rates or the reasons underlying high attrition statistics. Moreover, it proved helpful for

answering an external question about low minority participation in SF and, ultimately, for suggesting possible new minority recruiting initiatives.

Finally, a key aspect of the recruitment work was an emphasis on soldier preparation. The physical training and career information handbooks were designed to help prepare soldiers for the challenges of SF and therefore improve their chances of success. Research showed that physical preparation indeed reduced attrition at SFAS and therefore reduced the cost of moving personnel through the SF pipeline. Both handbooks were most likely to benefit minorities and other non-Combat Arms soldiers who had relatively little opportunity to learn about and prepare for a career in SF.

Recruitment and Manpower Planning: Recommendations for the SF Community

- ☐ Take advantage of available data to effectively manage the force
 - Monitor historical trends, using the research-oriented personnel database
 - Adjust manpower projections to reflect how current changes in the Army population or in relevant SF and Army-wide policies may affect the flow of personnel
 - Before implementing a policy change affecting SF recruitment, consider the expected costs and benefits in terms of graduation rates, number of graduates lost, recruitment resources, academic recycle rates, relief rates, and size of the potential SF market.
- ☐ Target Rangers and Infantry NCOs for recruitment, to the extent that it is practical and feasible to do so.
- ☐ Continue efforts to attract more minority soldiers to SF and evaluate the impact of minority recruitment initiatives that are underway.
- ☐ Consider use of the ASVAB FA composite as a supplement to GT score information when setting SF aptitude prerequisites.
- ☐ Emphasize the preparation of new SF recruits, especially non-Combat Arms soldiers, while monitoring the use of and updating the current physical training and career information handbooks.

Recruitment and Manpower Planning: Recommendations for the Army

- ☐ Ensure that research-oriented personnel databases exist at least for MOS that are relatively hard to fill or costly to train.
- ☐ For MOS that are relatively expensive to train, ensure that historical personnel data are analyzed to yield current profiles of the kinds of soldiers who tend to successfully complete training, using the results to target high potential candidates for recruitment.
- ☐ Evaluate the impact of proposed changes in recruitment or accessions policy on Army personnel throughput
 - Identify how the policy change will affect the composition of the Army market
 - Analyze historical personnel data by MOS or consult existing studies to identify how soldier characteristics are related to MOS training success
 - Use analysis results to help estimate the impact of changing market conditions (soldier characteristics) on MOS throughput
 - Consider all potential costs and benefits of a policy change, such as the recruitment resources needed, market size, number of potential graduates lost, recycle rates, relief rates, graduation rates.
- ☐ To reduce costly attrition early in the pipeline, develop initiatives to ensure that recruits arrive physically prepared for training and with realistic expectations about the Army.

Selection Measures for Special Forces

by Robert N. Kilcullen, Gilad Chen, and Sheila T. Simsarian

In the context of recruitment and manpower planning, we have mentioned some of the ARI research that assessed the impact of certain recruiting, prescreening, and selection policies on the flow of soldiers through the SF pipeline. For example, we discussed analyses that examined the impact of raising APFT score prerequisites on the select rates and loss of potential graduates from SFAS. We described research that assessed how proposed SF aptitude prerequisite changes

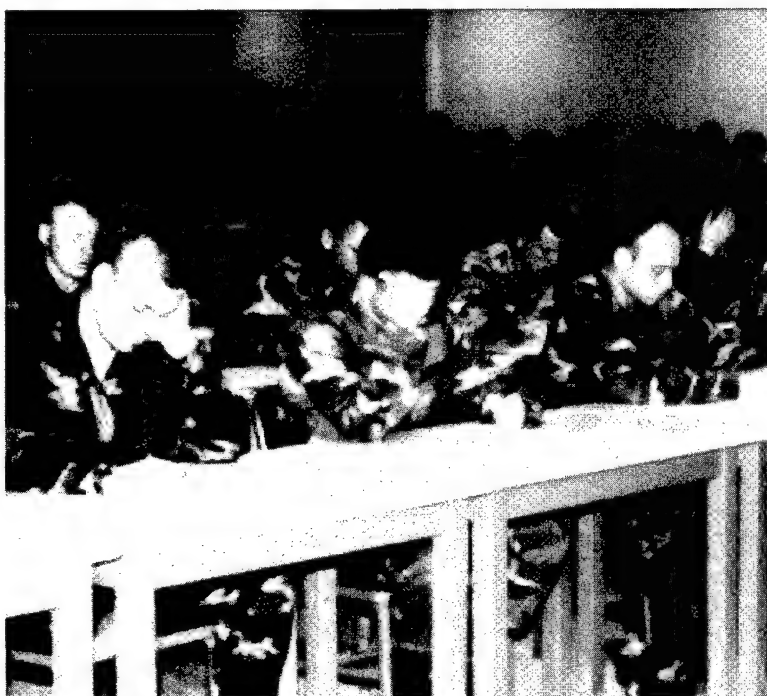
might affect SFQC graduation rates and other outcomes. In this chapter, we explore in greater detail methods for identifying high quality candidates early in the pipeline.

An interesting question for research was how to define and measure those aspects of personality or temperament that might predict success in SFAS.

As the research program progressed in the early 1990s, the ability to identify high potential applicants became increasingly important to SF. The Army drawdown severely

restricted the SF-eligible applicant pool at a time when operational tempo soared in response to heightened political instability and regional conflict. This created some concern about whether SF force structure needs could be met. Adding to this concern was the realization that any substantial loss of SF personnel through operational assignments would be difficult to overcome.

As discussed in the previous chapter, the Commanding General of USAJFKSWCS administered a waiver of the GT prerequisite in the Fall of 1996 to enlarge the applicant pool for SFAS. When this waiver was instituted, SFAS board standards and SFQC performance standards remained the same, ensuring that the quality of the soldiers entering SF would remain high. During any peri-



od in which the personnel demands in SF are high and the supply of eligible soldiers is low, it may be necessary to expand the pool of eligible soldiers. While this places an increased strain on the selection and training process and may result in somewhat higher attrition rates within each class, it provides the critical increase in output from the system with no decrease in soldier quality.

In instances such as these, steps can be taken to reduce the strain on the selection system by improving the efficiency of the process. One way of doing this is to shift more of the assessment process from SFAS, which is costly in terms of time, effort, and expense, to the recruiting stage, where simple, effective means of evaluating an enlarged applicant pool could be performed.

The goal of the ARI research described in this chapter was to identify practical, cost-effective tests that were strong predictors of success in SFAS. These tests could be used as part of the selection process in SFAS, or as prescreening measures given by the recruiters. Utilizing these tests during SFAS would inform SFAS board decisions; utilizing these tests at the recruiting stage would pre-screen soldiers for SFAS. Prescreening can serve to reduce the costs associated with inprocessing, assessing, and outprocessing SFAS nonselects, and can ease the workload of the SFAS cadre.

Our earliest efforts focused on determining the usefulness of newly available temperament and spatial

ability tests as well as pull-up tests for predicting SF selection. Later, we systematically examined tests of motivational and physical attributes and candidate background to determine what predicts successful completion of the selection program.

The issues we will address in this chapter are:

- ☐ How can we identify those individuals with the temperament for being selected to attend SFQC?
- ☐ Are pull-ups a useful tool to predict performance in SFAS?
- ☐ How useful are the Army's new spatial ability tests in the SF selection process?
- ☐ Among the various possible measures available, which are the best for identifying soldiers who are likely to succeed in SFAS?

Temperament Constructs

It has long been recognized that a certain temperament is required for success in SF. An interesting question for research was how to define and measure those aspects of personality or temperament that might predict success in SFAS. The research proposed by ARI took advantage of the availability of the Army's Assessment of Background and Life Experiences (ABLE), an instrument newly developed by ARI as part of a comprehensive research effort to improve the selection and classification of Army personnel. The research objective was to examine

the relationships between temperament constructs from the ABLE and SF selection.

Based on previous findings, researchers focused on ABLE scales to measure Energy Level, Emotional Stability, and Internal Locus of Control. They administered these three scales to four classes of SFAS candidates and examined the relationships of scores on these scales to SFAS outcomes. The findings showed that Energy Level and Emotional Stability predicted selection for soldiers who scored at the extremes of these scales. That is, very low scorers were more likely to quit, and high scorers were more likely to be selected. The data therefore suggested this tool as a possible way of identifying high potential candidates, and represented an important first step toward identifying tools for assessing attributes that are relatively difficult to measure (see DeMatteo, White, Teplitzky, & Sachs, 1991).

Pull-ups

In 1992, 1st Special Warfare Training Group (Airborne) added a pull-ups event to SFAS to obtain an additional assessment of upper body strength. In 1996, they asked ARI to examine the relationship between a candidate's score on the pull-ups test and his performance in the program (Zazanis, 1996b). Data from FY 92 to FY 95 indicated that 59% of the officers who could do 3 or more pull-ups were selected, while only 37% of the officers who could not were selected. Similarly, 48% of the enlisted who

could do 3 or more pull-ups were selected, while only 30% of those who could not were selected. ARI recommended that recruiters encourage soldiers to train using pull-ups to help them better prepare for SFAS. In addition, the weight given to the pull-ups event by the first board could be increased, although we recommended further analyses before making this type of change.

Spatial Ability

Our investigations also looked at the usefulness of newly developed tests of spatial ability as predictors of performance in SFAS. Researchers administered spatial tests to two SFAS classes and assessed the relationship between test scores and military orienteering performance, as well as SF selection. The results suggested that the spatial tests had potential use as land navigation diagnostic tools, and stimulated follow-on research that looked at these same tests as predictors of land navigation performance in the SFQC. In particular, the tests had potential value for identifying soldiers who could benefit the most from supplemental training to improve their land navigation performance. USAJFK-SWCS considered these findings when making subsequent changes to the land navigation aspects of its selection program.

A Comprehensive Approach

Later in the research program, ARI took a more comprehensive and systematic approach toward identifying practical, cost-effective measures

that were powerful predictors of success in SFAS and therefore could be utilized in the recruiting stage to evaluate eligible soldiers. We focused on tests that could be easily administered and computer-scored at this stage (e.g., motivational measures), as well as background information (e.g., ASVAB scores, age, years of service, Ranger qualification) that could be easily obtained. Table 3.1 lists all of the factors we considered.

ARI researchers looked at the relationship between these variables and SFAS selection and voluntary withdrawal rates, using data from more than 900 soldiers in SFAS classes conducted in 1996 and 1997. Analyses of the sample data showed that Rangers and officers had much higher select rates and far lower voluntary withdrawal rates than enlisted non-Rangers. This finding is consistent with previous ARI research on SFAS outcomes (DeMatteo, White, Teplitzky, & Sachs, 1991). In the research sample, approximately 81% of Rangers and 68% of officers were selected for training. In contrast, only 35% of enlisted non-Rangers were selected. Similarly, the Ranger and officer voluntary withdrawal rates were very low compared to the voluntary withdrawal rate for enlisted non-Rangers. These findings suggested that assessments at the recruiting stage should focus on the enlisted non-Ranger population, which represents the overwhelming majority of the SFAS candidate pool.

Further analyses focusing on enlisted non-Ranger performance in SFAS revealed that most of the attrib-

utes listed in Table 3.1 were unrelated to SFAS selection. Notable exceptions were measures of physical fitness. In particular, APFT scores were very strongly related to SFAS selection for enlisted non-Ranger soldiers. As shown in Figure 3.1, enlisted non-Rangers whose APFT scores are in the top 25th percent (above 254) enjoyed a SFAS selection rate three times greater than those who scored in the lowest 25th percent (below 227) on APFT. Essentially, enlisted non-Rangers who scored high on the APFT showed a success rate comparable to that of officers.

The fact that APFT scores are so highly related to selection in SFAS is consistent with previous research on the importance of fitness in this context (e.g., Teplitzky, 1991; Zazanis, 1996b). Because the relationship between APFT scores and performance in SFAS is so strong for enlisted non-Rangers, and because the APFT is practical to administer at the

Figure 3.1. SFAS select rates for enlisted non-Rangers.

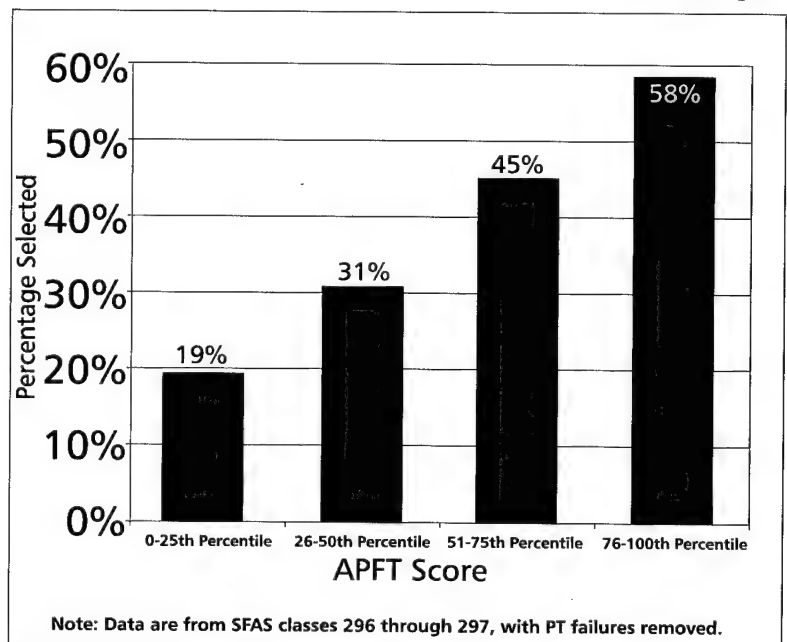


Table 3.1. Possible predictors of SFAS performance.

Motivational Attributes / Other Characteristics

Social Intelligence--the ability to read the motives, feelings, and intentions of others
 Pre-SF Evaluation--indicates how a soldier's pre-SF superiors view him based on his pre-SF performance
 Cultural Adaptability/Flexibility--a curiosity about other cultures and a willingness to respect their customs
 Diverse Friends--having a variety of different types of friends with different backgrounds
 Fitness Motivation--the desire to maintain good strength and cardiovascular conditioning through regular aerobic and weight training exercise
 Swim--enjoyment of and skill at swimming
 Organizational Identification--the tendency to personally identify with organizations to which one belongs
 Work Motivation--the proclivity to commit time and energy towards work-related activities and to strive for success in one's work
 High School Leader--history of participation as a leader in school sponsored activities (e.g., sports, clubs, student government) while in high school
 Openness/Cognitive Flexibility--comfort with uncertainty and a willingness to explore new ways of achieving objectives
 Outdoor Orientation--participation in and enjoyment of rugged, outdoor activities
 Mechanical Aptitude--skill in using tools or in making, operating, and repairing machines
 Team Orientation--a preference for working with others and a willingness to assist teammates
 Object Belief--the degree to which the person is self-serving and deceitful when dealing with others
 Autonomy--the desire to be independent of others and to work alone
 Aggressiveness--a tendency to engage in physical confrontations with others
 Anxiety--the tendency to become nervous/upset and to lose composure under pressure

Spatial/Cognitive Attributes

Assembling Objects (spatial ability)

ASVAB

General Technical
 Combat
 Electronic
 Field Artillery
 Surveillance/Communication
 Skilled Technical

Wonderlic (IQ test)

Defense Language Aptitude Battery

Test of Adult Basic Education

Language Mechanics

Math Grade Level

Reading Grade Level

Vocabulary Grade Level

Demographic Characteristics and Military Experience

Age

Airborne

GED

Platoon Leader Development Course

Ranger

Years of Education

Years of Army Service

Physical Attributes

Pull-up Score

APFT Total Score

Pushup Score

Run Score

Sit-up Score

recruiting stage, its use as a pre-SFAS screen for enlisted non-Rangers would be a viable option for maximizing SFAS select rates and reducing SFAS costs and cadre workload. The more the eligible pool of applicants is expanded, the more attractive this strategy becomes for minimizing the strain on the selection system.

In a later chapter (Special Forces Soldiers in the Field), we discuss the finding that background data measures of motivation and adaptability are good predictors of on-the-job performance among SF soldiers. The fact that they do not predict SFAS selection speaks to the issue of what is being assessed in this program. The results presented in this chapter suggest that SFAS selection is primarily driven by physical fitness. Therefore, one idea for improving the selection system would be to supplement the SFAS program with additional measures of motivation that have been linked to subsequent SF job performance. This could be done by making motivation test scores available to SFAS boards and by developing new SFAS events that require cognitive motivation and flexibility.

Summary and Conclusions

The goal of this research was to identify selection measures that were related to performance in SFAS. Depending on current needs, this research could be used to inform

SFAS board decisions or to reduce the strain on the selection system by implementing practical, cost-effective pre-SFAS screens. ARI's earliest efforts focused on evaluating specific, individual measures for their potential usefulness as tools in SFAS. Research involving the validity of temperament, pull-up, and spatial ability tests showed that these measures predict attrition from SFAS for individuals with extreme scores on these scales. As such, they offer additional information for consideration in the SF selection process.

Our later efforts took a more systematic approach by examining how the candidates' background, motivation, spatial/cognitive abilities, and physical fitness predicted SFAS performance. These analyses demonstrated the critical role of physical fitness for performance in SFAS. In particular, APFT testing of enlisted non-Rangers at the recruiting stage would be the most viable way of maximizing SFAS select rates and reducing SFAS costs and cadre workload.

We also discussed the finding that measures of motivation and adaptability are good predictors of on-the-job performance among SF soldiers. The finding that they do not predict SFAS selection suggests that it may be useful to introduce tests or activities in SFAS that could better measure these critical motivational attributes.

Selection Measures: Recommendations for the SF Community

- ☐ When enlarging the eligible pool of applicants becomes necessary, consider implementing APFT screening of enlisted non-Rangers at the recruiting stage to reduce the strain on the selection system.
- ☐ Ensure that each potential recruit is given a realistic description of the demanding nature of SFAS and receives a handbook describing how to physically prepare for SFAS.
- ☐ Consider using the motivational measures that predict SF job performance to assist in evaluating SFAS candidates.
- ☐ Continue to investigate the relationship between individual attributes and performance in selection and training with the expanded pool of applicants.

Selection Measures: Recommendations for the Army

- ☐ Determine whether cognitive, physical, and motivational attributes are potentially useful as prescreens for saving costs and improving efficiency in basic training as well as other Army training and selection courses.
- ☐ Consider the applicability of SFAS selection tests and procedures to selection for Drill Sergeant positions.

Special Forces Assessment

by Michelle M. Zazanis

On the road to earning the SF tab, the term assessment is most commonly associated with the 3-week SFAS program that selects candidates for SF training. It is important to recognize, however, that the term assessment refers to the general process of measuring an individual's characteristics, such as knowledge, skills, abilities, and personality characteristics, and that assessment procedures are used throughout the road to SF. This chapter will discuss research regarding assessment procedures used in SFAS and in the training program, the SFQC.

While assessment is used in both of these settings, the purpose of assessment in each of these settings is clearly very different. In SFAS, assessment is used to accumulate the information necessary to select personnel to attend SF training. In SFQC, assessment is used to monitor students' training progress and to ensure that soldiers are meeting the required training standards. While the type of assessment tools used in SFAS and SFQC are largely the same, different uses of the information can require

differences in formats or in measurement.

While it is most common to stress the importance of assessments made by people in positions of authority, research suggests that peers are also quite capable of making valid assessment judgments.

As specialists in the measurement of human behavior and human characteristics, refining the SF assessment process has been a priority of our research program with SF. Since 1991, we have been involved in a number of projects designed to update, improve, or evaluate the assessment processes in SFAS and SFQC.

The major research questions were:

- ☐ How can the assessment process in SFAS be clarified and streamlined?
- ☐ How can the training for SFAS assessors be improved?
- ☐ What is the best way to elicit and use peer evaluations?
- ☐ How can the Special Warfare Center and School establish the right climate for assessment?
- ☐ How can historical information be used to advise changes to assessment procedures?

This chapter will discuss the research ARI conducted to help answer these questions.

Clarifying SFAS Assessment

SFAS, developed in the late 1980s, was designed to assess the suitability of soldiers for SF training. Suitability for training was determined by the extent to which candidates, during their 3 weeks in the SFAS program, demonstrated the 11 attributes that the 1st Special Warfare Training Group (Airborne) indicated were necessary for success in the SFQC.

During these 3 weeks, SFAS uses both objective and subjective assessment techniques. Objective assessments are evaluations that measure performance against a clear and established measurement system, such as times or distances for runs or ruckmarches. Subjective assessments are evaluations based on measurement systems that are not as established and more difficult to use. These subjective assessments are critical in order to evaluate specific abilities and personality characteristics that are important for SF training, such as teamwork or maturity, even though these attributes do not have a clearly established measurement ruler. To use subjective evaluations in a reliable manner, it is critical that clear measurement procedures are in place.

In 1992, the command in charge of SFAS began to identify inconsistencies across SFAS cadre in the way cadre were writing up sub-

jective assessments for SFAS candidates. They requested assistance from ARI in evaluating the assessment procedures and improving the quality of assessments and the consistency across cadre. ARI researchers reviewed existing written documentation on the process, read example assessment reports written by cadre, and conducted interviews with cadre and candidates.

Based on this information, we developed a series of 40 hypothetical SFAS scenarios, and asked the assessors to complete assessment reports on the candidates described in the scenarios. Analysis of these assessment reports demonstrated that the assessors had different operational definitions of the 11 attributes being used in assessment. For example, what represented teamwork to one assessor was different from what represented teamwork to another. The cause of these disagreements appeared to be twofold. First, the written definitions and descriptions of the 11 attributes were inadequate, and second, there was no standardized training program for SFAS assessors.

As a first step toward developing a solution, ARI sought to clarify the definitions and descriptions of the attributes used in assessment. In August 1992, ARI convened a panel consisting of officers and NCOs in charge of the SFAS program, and ARI researchers. The panel was to accomplish the following: (1) review the existing attribute definitions and performance indicators, (2) review cadre perceptions of the definitions based

on analysis of the hypothetical scenarios, (3) determine where the current definitions were lacking in specificity or were inappropriate in some way, and (4) agree upon revisions to the definitions and performance indicators. Across the two-day meeting, panel members reviewed each dimension and reached agreement with respect to revised definitions and performance indicators. To ensure precise dimension definitions and performance indicators, 2 of the original 11 dimensions were split into component dimensions, resulting in 13 final rating dimensions (Zaccaro, Zazanis, & Diana, 1993).

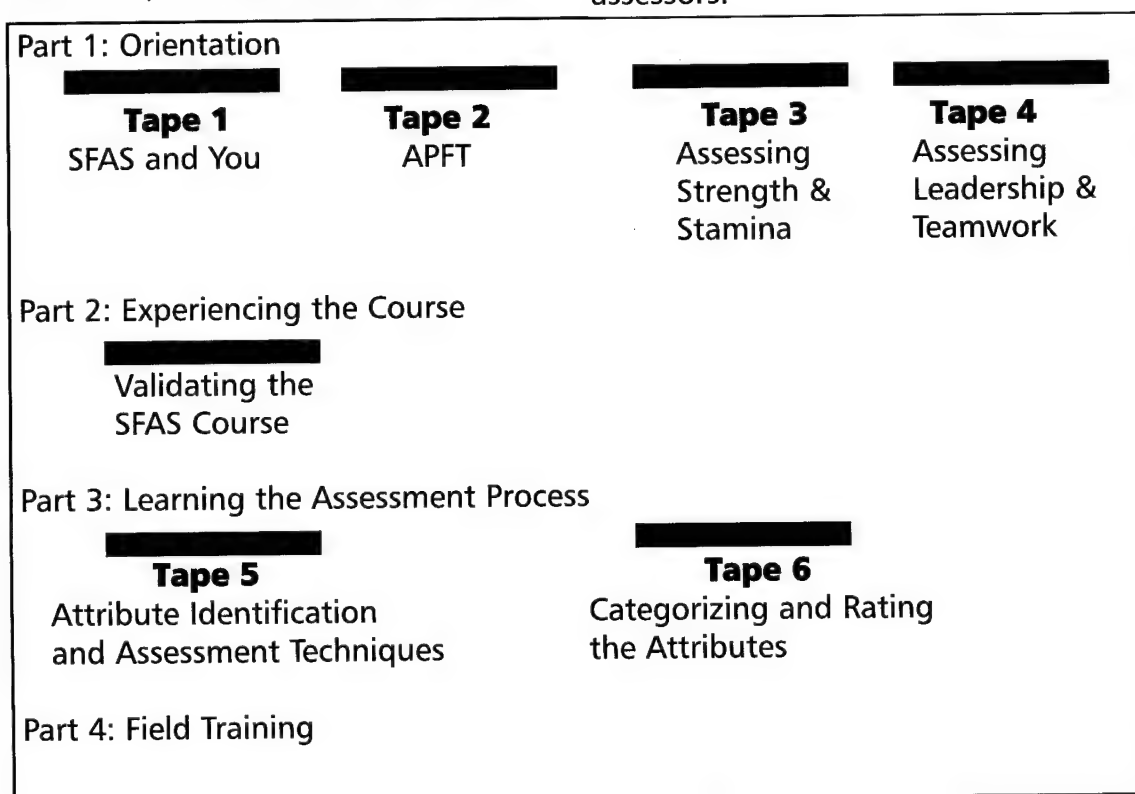
ARI researchers worked with the company commander to produce a revised, more explicit version of the Assessor Handbook that detailed the new definitions and performance indicators, and described other rele-

vant assessment information. In April 1993, SFAS instituted the revised definitions, accompanied by the revised handbook and assessment forms that included the two new dimensions.

Training SFAS Assessors

In addition to the new Assessor Handbook, it was necessary to develop a structured assessor training program to improve the consistency and quality of assessments. The original training for SFAS assessors was unstructured, on-the-job training, supplemented by the Assessor Handbook. The lack of structure tended to magnify differences across assessors in their methods of assessment. A structured training program was needed that would promote high quality assessments and consistency across assessors.

Figure 4.1.
Outline of the
Assessor Training
Program.



The training program needed to accomplish several goals. First, familiarize new assessors with the structure of the SFAS course and their basic role as assessors. Next, define the assessment process and the SFAS performance dimensions, and provide the new assessor extensive practice in making assessments. Finally, provide a smooth transition for the new assessor to move from the training environment to the real assessment situation. Because new assessors would be joining the company at staggered times, and because the experienced assessors did not have time to train new assessors while a class was in session, the training program needed to be designed such that it could be self-administered and self-paced. With a self-administered design, new assessors could immediately begin training on their own.

To achieve a self-administered format, a video-based training program was developed that is accompanied by supporting written workbooks and exams. An outline of the training program can be seen in Figure 4.1, and the program materials are described in further detail in Table 4.1.

USAJFKSWCS implemented the SFAS Assessor Training Program in March 1993. In addition to using the program for new assessors throughout the year, USAJFKSWCS uses it as a tool in company-level refresher training once a year, typically in August. Changes to inprocessing procedures and the order and structure of SFAS events have since outdated some of the material in the orientation tapes.

Training for the subjective assessment process, however, remains the same and continues to be an invaluable asset in creating a reliable and valid assessment program.

Improving Peer Evaluation Systems

While it is most common to stress the importance of assessments made by people in positions of authority, research suggests that peers are also quite capable of making valid assessment judgments. For this reason, the research focus began to shift from the assessments that cadre make, to those made by the SFAS candidates and SFQC students themselves. Working in a team environment is a critical dimension of Special Forces units. Not surprisingly, both SFAS and SFQC use, in part, team-based exercises in their selection and training events. The requirement that this introduces for interdependence and interaction among team members provides an excellent setting for reliable and valid peer evaluations.

In 1994, USAJFKSWCS's 1st Special Warfare Training Group (Airborne) asked for assistance in determining how current peer evaluation systems in SFAS and SFQC could elicit the most appropriate information, and apply it in the most appropriate ways. ARI agreed to provide information, recommendations, and materials to enhance the utility of peer assessments in SFAS and SFQC. The first critical step was to evaluate the peer evaluation systems that were currently in place.

Table 4.1.
Description of
Assessor Training
Program.

Part 1

The first part of the training program consists of four tapes and supporting materials that provide an orientation to the SFAS program. The first tape presents an overview of SFAS, the purpose of SFAS assessment, and an outline of the assessor training program. The new assessor is given a folder of "welcome" documents that provide information on training procedures for assessors. The second tape in the series is the Army's APFT testing tape, accompanied by a series of test questions. The third and fourth tapes present a detailed description of the program events and the assessor's responsibilities during the events. Written tests are given to verify the assessor's knowledge.

Part 2

The second part of the training program was designed primarily for new assessors who entered SF before SFAS was developed, and needed to "validate the course". While course validation had always been required of new assessors, ARI developed written exercises to help them mentally process information that was relevant to assessing candidates after participating in the different events. Assessors who attended SFAS as candidates are not required to validate, but are still expected to complete the exercises.

Part 3

The third part of the training program describes the principles of subjective assessment: observing and recording candidate behaviors, and writing assessments based on these observations. This module of training uses interactive videotapes and workbooks to provide instruction, practice, and feedback, allowing the new assessors to grade their own performance. The first tape introduces subjective assessment principles, defines and discusses the 13 attribute dimensions, and provides initial practice writing reports using the STAR format (Situation, Task, Action, Result). The second tape provides additional practice assessing more complex situations.

Part 4

The final part of the training program pairs an experienced assessor with the new assessor to prepare him for the transition into the assessment setting. A detailed Field Training Manual provides the experienced assessor with instructions for accomplishing this transition.

Evaluation of current systems.

Both SFAS and the field phases of SFQC were currently using ranking methods to obtain information from peers. In SFAS, candidates ranked the members of their team from best to worst with respect to their overall contribution to the team's performance. In addition, they answered a page of descriptive questions about the individuals they ranked at the top and bottom of the list. While the process of using a single overall ranking offered a condensed summary of peer evaluation information, the meaning of this overall ranking was ambiguous. Pilot research indicated that this overall ranking included information from multiple performance dimensions. In some cases, an individual may have been ranked low primarily due to his lack of leadership skills, and in other cases, a low ranking might have reflected an inability to interact well with others. Separating this information would assist SFAS board members in making selection decisions.

The problem with lack of specificity was echoed in the SFQC peer evaluation system. In the field phases of SFQC, students ranked the members of their team from best to worst based on their overall contribution to the team effort. In addition, peers offered written descriptions of the students they ranked at the top and bottom. As with SFAS, this broad, single dimension of performance provided a convenient summary rating, but did not allow SFQC personnel to identify and separate soldiers' strengths and weaknesses. This was especially problematic in a training

setting, where the goal of each assessment tool is to help the student identify specific strengths and weaknesses, and set goals to improve. Although the descriptive forms being used offered some insight into these issues, not every student received written descriptions, and the information was not in a standardized format.

Initial recommendations.

Having evaluated the existing peer assessment systems, ARI was able to recommend improvements. For SFAS, where there was a need to clarify the meaning of peer assessments, ARI recommended that candidates evaluate their peers with respect to specific performance dimensions that have been identified as important in SFAS. Pilot research suggested revising the system to obtain peer assessments on three specific dimensions: effort/persistence, leadership, and interpersonal skills. In addition, we recommended that behavior descriptions be developed for each of the categories to ensure that different candidates were considering the same things when making their evaluations for a given dimension. For SFQC, where students need adequate feedback, ARI recommended that information obtained from peers in the SFQC focus on the attributes and behaviors critical to SFQC training. Research in the field phases of the course suggested obtaining information across six performance dimensions: effort, interpersonal skill, physical ability, leadership, tactical skill, and teamwork. As with SFAS, we recommended that behavior descriptions be developed for each of

the categories to ensure that different candidates were considering the same things when making their evaluations for a given dimension.

In addition to increasing the specificity of the evaluations for the SFQC, ARI also recommended changing from a ranking-based system to a rating-based system to obtain peer evaluations. While peer rankings are useful in settings with selection objectives, such as SFAS, ratings are a more appropriate method of obtaining evaluations in training settings. Peer rankings force an even distribution of scores, and require that individuals be placed in an absolute order from best to worst. This is useful in a selection setting to prevent overly positive rater bias. It is not as necessary in a training setting, where the objective of the peer assessments is to give the student feedback with respect to the course standards - not with respect to the other members of his team. In addition, soldiers in the SFQC training setting have been pre-selected based on their performance in SFAS, and as a group, therefore, they have considerably higher than-average skills and abilities. Ranking these soldiers with respect to each other was therefore not particularly useful, and tended to elicit negative reactions from the students. Using a rating system would allow students to be compared to the SFQC standard, instead of the other members of the team.

Implementation and evaluation. In 1995, ARI delivered a report detailing these recommendations for changes to the peer evaluation systems (Zazanis, 1995). USAJFKSWCS

adopted many of the recommendations, and we developed an action plan for change. Implementing these changes required that efficient systems be developed to ensure a quick response time for processing the information. Time was a critical factor. In SFAS, operations personnel have about 24 hours to process peer evaluations, and in SFQC field training this is cut down to about a 4-hour window available from the time peer evaluations are collected until cadre begin counseling their students.

To ensure a quick response time, ARI recommended purchasing optical scanning forms and equipment. ARI worked with personnel from National Computer Systems to develop optical scanning forms for SFAS and SFQC. In early 1997, personnel from Research Planning, Inc. began developing computer programs to streamline the process of scanning the data and generating the peer evaluation reports.

The final requirement was to ensure that the personnel who needed to use the new information understood how to use it. For SFAS, this was fairly simple, because the new information had the same format as the previous, it was just more specific. ARI consulted with the company commander in charge of SFAS to develop briefing charts that would inform the board members of the changes. Making the transition to the new system required more effort for the SFQC, since the information had a different format--rating data instead of rankings. To help SFQC



Peer Evaluations

DIRECTIONS: You will be rating each member of your team in six areas: Physical Performance • Effort & Persistence • Social Interactions • Teamwork • Leadership Performance • Tactical Performance. At the beginning of each section there are descriptions of what you should consider when making your ratings in that area. Fill in the ID # for the first soldier on your team in column #1. Then rate this soldier in each of the 6 areas, recording your ratings in that column. Repeat this process for each member of your team.

Use a No. 2 pencil only. Fill the oval completely. Correct Mark

WRITE IN 3 DIGIT
ED NUMBERS
HERE AND FILL
IN BELOW

[illegible]

Strength • Endurance • Coordination • Ability to function with little sleep • Operation under Stress

[illegible]

Keeps going when things get tough • Works hard even when cadre are not around • Is always determined to succeed • Uses feedback to improve

[illegible]

were tested in the last three classes of FY 95, and the scannable forms and automated processing systems were implemented in April 1997.

By design, the new systems offer more specific information to SFAS board members and SFQC trainers than the previous systems. Additional evaluation of the systems will be able to offer an analysis of the psychometric properties of the peer evaluations and an examination of the consistency of the peer evaluations an individual receives across the selection and training process. Previous data from the SFQC have shown that SFAS candidates with the lowest peer ranks were 20% less likely than the highest ranking candi-

dates to graduate from the SFQC (see Figure 4.2). Determining whether certain dimensions of the SFAS ranking are either more or less predictive of SFQC performance could offer critical feedback to the SFAS board to modify the weight they give to peer evaluation information. Peers seem to be particularly good at judging important personality and interpersonal characteristics (Zazanis, in review), and given the criticality of these to success in SF, maximizing this information in the selection and training process is essential.

Monitoring the Assessment Climate

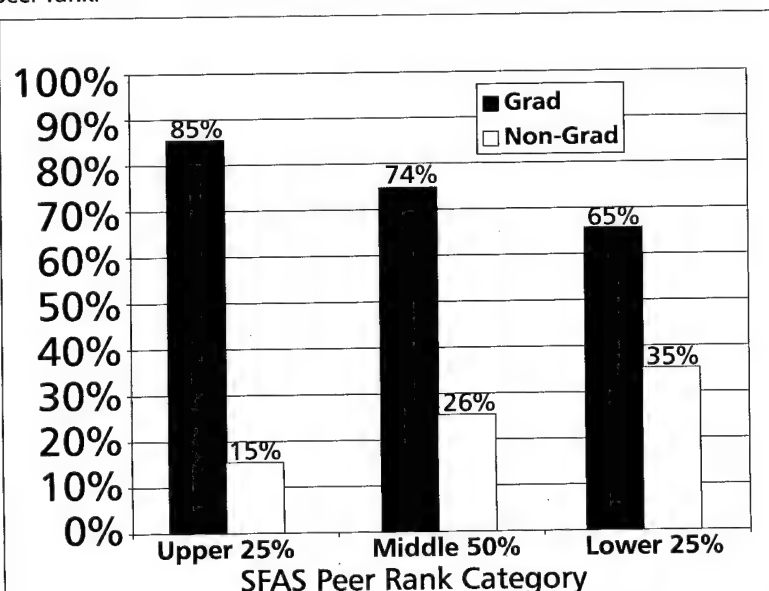
One of the most critical dimensions of our work with 1st Special Warfare Training Group (Airborne) has been our long-term research perspective on monitoring different aspects of assessment in SFAS and SFQC. One approach to monitoring has been to obtain feedback from

soldiers about the programs, to provide valuable information about the assessment climate.

Cadre in SFAS and SFQC maintain different bearing, because the two programs have very different missions. While the cadre in the selection program maintain a stoic and detached presence, the cadre in the training program adopt more of a mentoring role. Both programs, however, must maintain fair and professional assessment climates. It is critical that candidates and students perceive a basic fairness in the cadre's assessments of their performance. First Special Warfare Training Group recognized the importance of obtaining feedback from the soldiers about the programs, and both SFAS and SFQC used an evaluation form to get feedback after each course. The original forms they used, however, were not providing the information the command needed to fully understand the soldiers' impressions about their experiences in SFAS and SFQC. ARI helped design course evaluations for SFAS and SFQC to provide additional information about course climates.

SFAS exit surveys. The original evaluation form for SFAS did not obtain clear enough information about candidate perceptions of the fairness of the program or about candidate perceptions of the adequacy of their preparation for the course. Further, the original form was designed only for candidates who had completed the program, not for candidates who left prior to the end. This meant that valuable opinions from those candidates who left were

Figure 4.2. SFQC outcomes by SFAS peer rank.



Note: Data Source is ARI SFQC FY 92-94 Active Duty Enlisted Longitudinal Database

not being registered from class to class.

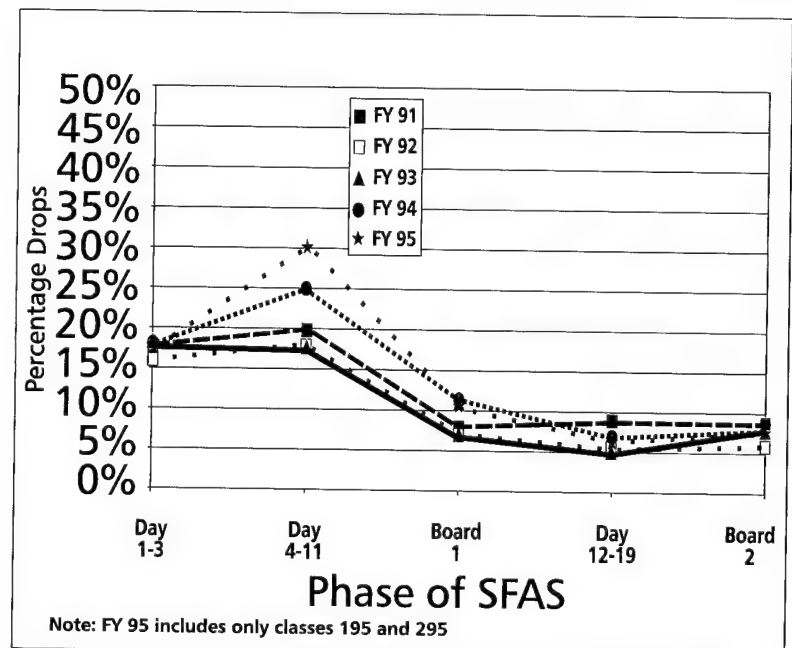
ARI and USASOC psychologists redesigned the survey form in 1995 to ensure that clear information was obtained about candidates' experiences while in the program, their perceptions of their performance, and the overall program climate. An out-processing survey was also developed specifically for candidates who did not complete the program. In addition, the new surveys were redesigned to use a scannable format to expedite data processing. In 1996, the Directorate of Analysis and Evaluation at USAJFKSWCS assumed responsibility for the evaluation process, agreeing to order the forms, scan the surveys, and analyze the results following each SFAS class. The survey continues to be a critical tool for the command's use in monitoring the assessment climate and understanding the experiences and preparation of program candidates.

SFQC evaluations. The SFQC has historically used an unstructured essay survey to obtain feedback from students about the course. This type of format is useful for generating new ideas and solutions to potential problems with the course; however, it can be difficult to determine the perceptions of the class as a whole in any one particular area, because students may or may not think to offer an opinion in that area. ARI developed a 16-item course evaluation survey that asked students to agree or disagree on a 5-point scale with a series of statements about the course, covering topics such as the appropri-

ateness of the time available, the helpfulness of the other students, and cadre fairness and consistency.

The survey was given during several classes of SFQC students in late FY 95 and early FY 96 as they completed their first phase of training. Results indicated that students had very positive perceptions of the teamwork among the students, but that they perceived inconsistencies in cadre assessments and course standards and perceived a selection-oriented instead of learning-oriented climate. Maintaining a learning environment in a training program that trains to strict standards is very difficult, because students are not allowed to continue with the course if they do not meet the course standards. Strict standards are essential to ensure a high quality force, but as a consequence, this hurdle system can easily foster a climate that

Figure 4.3.
Attrition during
each phase of
SFAS.



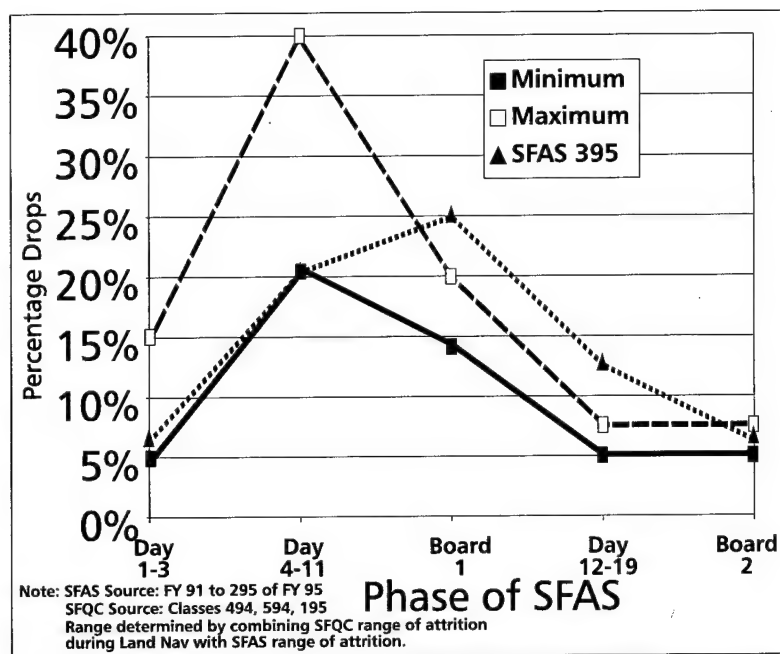


Figure 4.4.
Range of projected attrition for SFAS 395 with actual 395 attrition.

emphasizes the assessment aspect of the program instead of the learning dimension.

Changing the course climate and improving the consistency of standards across cadre would require an approach that involves eliciting command emphasis in certain areas, eliciting the example of senior NCOs, and developing a more structured cadre training program. ARI recommended a specific approach to begin addressing these issues (Zazanis, 1996a). While developing a more structured cadre training program would be a time consuming undertaking, it may be a necessary step to ensure the reliability and consistency of cadre assessment in SFQC.

Tracking Historical Data

While surveys can be used to monitor the assessment climate in

SFAS and SFQC, attrition data can be used to analyze changes made to the programs or to inform policy decisions. In two instances discussed below, we show how researchers used historical data to help USAJFK-SWCS analyze proposed program changes and inform decisions affecting these programs.

Land navigation. Land navigation has historically been one of the biggest hurdles in the SFQC. The concept of replacing the SFAS military orienteering events with the SFQC land navigation unit was initiated by 1st Special Warfare Training Group (Airborne) as an attempt to incur the cost of this attrition earlier in the process. In 1995, they tested this proposed change to the SFAS program. USAJFKSWCS then requested assistance from ARI in examining the effect this change had on attrition in SFAS, and what type of increase in attrition would be reasonable given the prior attrition history of SFAS and of land navigation in the SFQC.

Based on the historical range of attrition for each phase of SFAS (see Figure 4.3), as well as the range of attrition during SFQC Phase I land navigation training, ARI determined a reasonable range of attrition for each phase of the SFAS test class and compared it with actual attrition (see Figure 4.4). Additional analyses compared the proportion of voluntary withdrawals and involuntary withdrawals in the test class with those in previous fiscal years. These data were used in conjunction with other evaluation data to assess the efficacy of the proposed change.

SFQC phase change. At the end of FY 90, 1st Special Warfare Training Group (Airborne) decided to alter the training course sequence so that students attended MOS training prior to attending any field training. Previously, students attended initial field training, then MOS specific training, then returned for additional field training and a field exercise. ARI identified a shift in the proportion of students who dropped during the field versus MOS phase that corresponded with the change of schedule (Zazanis, Teplitzky, & Diana, 1994). This shift can be seen in Figure 4.5. While 73% of the students who were recycled or relieved from the course in FY 89 dropped during the field phases, only 32% of the students who dropped from the course in FY 92 dropped during the field phases. The critical issue is that the increase in attrition from the MOS phase was not likely to have been caused by a change in the assessment or training procedures. Rather, there appeared to be a group of individuals in the SFQC who were not able to master the required material and would therefore fail early in the course, regardless of which phase was taught first.

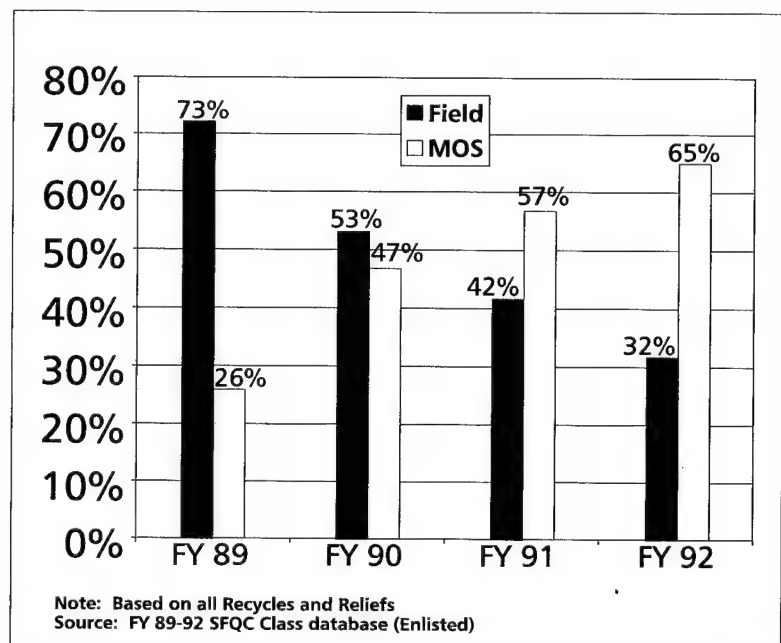
Summary and Conclusions

Our research on assessment has examined and modified aspects of both the selection and training programs. While the missions of SFAS and SFQC are clearly very different, many of the assessment techniques and tools are very similar. The most critical aspects of assessment

are the reliability or consistency of the assessments, and the validity or quality of the assessments. The assessment research ARI has performed with SFAS and SFQC has attempted to maximize the reliability and validity of the assessment process in both selection and training. These projects included revising the assessment techniques in SFAS and developing training to improve the reliability and validity of assessments there, developing new forms to maximize the assessment information we can obtain from peers, identifying and describing characteristics of the assessment climate using surveys, and using historical data to monitor the assessment process.

The process of continually reviewing the techniques and tools that are being used for assessment is critical to ensure the highest quality personnel are being selected and trained. It is just as critical, however,

Figure 4.5.
Proportion of
Field/MOS drops
during SFQC for
each fiscal year.



that any changes that are made are reviewed carefully and cautiously. In a multi-step system, a change in one area of assessment could have a

great impact on other areas of the system. As a result, changes that are not well thought out could have disastrous consequences.

Assessment Recommendations for the SF Community

- ☐ Continue to develop and update SFAS and SFQC assessment databases; link data across assessment situations.
- ☐ Ensure 1st Special Warfare Training Group (Airborne) personnel consult with researchers or database statisticians regarding historical information that could inform decisions or program changes.
- ☐ Continue to use end-of-course surveys to monitor assessment climates in SFAS and SFQC.
- ☐ Review the assessment climate in the field phases of SFQC.
- ☐ Determine the feasibility of developing a more structured training program for SFQC cadre.
- ☐ Ensure command emphasis on using the SFAS Assessor Training program. Review the training program each year to ensure course information and instructions are current.
- ☐ Evaluate the effectiveness of the new peer evaluations systems. Ensure SFQC cadre receive training for using the new peer evaluation information in student counseling sessions.

Assessment Recommendations for the Army

- ☐ Examine the utility of developing video-based training programs for other assessment situations in the Army, such as Basic Training or Reserve Officer Training Corps.
- ☐ Identify other programs that use peer evaluations as assessment tools; determine whether more specific assessments would be useful in these situations and analyze the costs and benefits of such a change.

Special Forces Training Enhancements

by Judith E. Brooks and Jonathan D. Kaplan

Most soldiers who complete the SFAS program and are selected for training proceed to the SFQC. The SFQC has changed over the years, as modifications to the training content, course sequence, and training location have been needed. At the time ARI was most heavily involved in training-related research with USAJFKSWCS, the 24-week SFQC included 13 weeks of MOS training followed by 9 weeks of branch training that covered land

Importantly, we were able to characterize effective and ineffective planning, reporting the tendencies of "strong" and "weak" ODA teams engaged in the planning process.

navigation, small unit tactics, air operations, mission planning, and a field training exercise. Two of the

MOS, 18D and 18E, required additional training. Medical sergeants attended a 31-week Special Operations Medical Sergeants Course (SOMED), and communication sergeants attended 8 weeks of Advanced International Morse

Code (AIMC) training. The qualification course for officers (18A) included training in each SF specialty plus the planning and leadership skills he would need to direct and employ the members of his detachment.

During and after the SFQC, NCOs and officers also received training relevant to intercultural communication, including negotiation skills training and a regional orientation course. Required foreign language training for about 4 to 6 months developed the basic communication skills soldiers needed in a typical SF assignment (e.g., conducting military training in a foreign country). Once in an SF assignment, soldiers trained to sustain or enhance their skills or to acquire advanced skills.



The ARI-USAJFKSWCS research issues that emerged in the area of SF training had to do with fine-tuning the SFQC and enhancing the development and sustainment of foreign language and cultural communication skills needed to interact with host nation populations. Two of our early projects involved analyses of a specific training problem area and development of recommendations to improve the training. The more recent training work focused on developing tools and methods to support foreign language and cultural communication training. The major training research questions addressed through the ARI-USAJFKSWCS research program were:

- ☐ Why were attrition rates in the 18D SOMED course so high?
- ☐ How can SF improve the mission planning skills of ODA leaders?
- ☐ How can new technologies be used to support foreign language training?
- ☐ What are effective methods or tools for quickly training soldiers in cultural communication skills?

This chapter discusses the research approaches and major findings developed to answer these questions.

Analyzing 18D Medical Sergeant Training

Training to become an SF medic is very difficult, largely due to the requirement to learn many tasks

in a short period of time. Attrition from the course has historically been high. However, from FY 89 to FY 92, attrition from the SOMED portion of the training had risen from 38% to a startling 53%. The high 18D attrition rates were of concern, since they could lead to MOS shortage, increased training costs, and loss of quality soldiers. In FY 93, the USASOC Commanding General asked ARI to examine the causes of 18D attrition both from training and from the force. ARI responded, with a primary focus on attrition from 18D qualification training (Graham, 1994).

In brief, the research began with an examination of the 18D selection and training process, with a particular emphasis on SOMED. This early phase of the project included direct observation of training. Researchers also analyzed 18D attrition statistics and manpower projections, using ARI's SFQC research database to look at attrition patterns and changes in 18D SFQC attrition rates from FY 89 to FY 92. For example, the data in Figure 5.1 show a decrease in the probability of graduating for initial inputs but a relatively constant (and relatively high) probability of graduating for recycles. Data such as these helped shape subsequent recommendations for the SOMED recycling policy. The largest portion of the research, though, involved gathering and analyzing interview and questionnaire data. Researchers interviewed approximately 100 individuals, mostly students, instructors, and SF medics, but also 18D training directors, managers, and developers. The interview data served

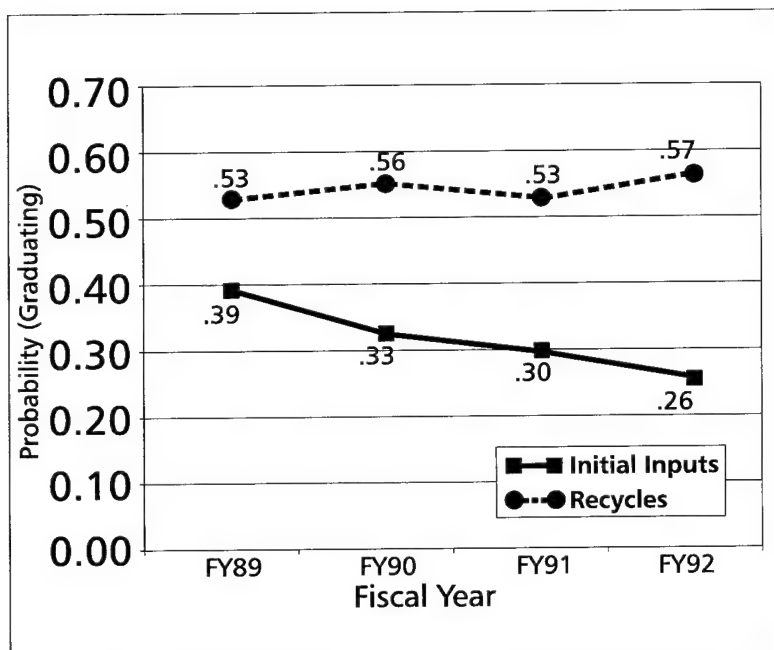


Figure 5.1.
Probability of
graduating from
18D SOMED train-
ing as a recycle or
initial input.

as a basis for developing the "Questionnaire on 18D Qualification Course Attrition" that was administered to 130 individuals, including students relieved from SOMED, current students, instructors, and SF Group medics.

Researchers organized and interpreted the data around three major factors of attrition: training adequacy, selection of people for the course, and test evaluation and standards. Based on the findings, ARI developed several major recommendations for improving the 18D qualification course and reducing attrition. Under training, some of the recom-

mendations addressed course content and structure, student/instructor ratios, and instructor backgrounds. Recommendations pertaining to selection had to do with student backgrounds and MOS preference, and their relationship to training success. In the evaluation and standards area, recommendations addressed, for example, subjectivity in grading and differences between training and testing conditions. A sample of the top recommendations is given in Table 5.1.

The research findings and recommendations were briefed to the Commanding Generals of the USASOC and the U.S. Army Medical Department Center and School. The results were used to improve SF medical sergeant training at Fort Sam Houston, TX, and Fort Bragg, NC, and also in the design of the Special Operations Medical Training Center.

Improving Mission Planning Skills

Another training problem for SF was the development of mission analysis and planning skills. These skills are critically important, since the success of an ODA largely depends on the quality of the unit's initial mission planning. The early research

Table 5.1. A sample of ARI's recommendations for reducing attrition in the 18D qualification course.

- ☐ ***Increase the number of instructors at SOMED.***
- ☐ ***Make sure that the training on IVs (intravenous) is conducted under the same conditions as the field testing.***
- ☐ ***Ensure that the new SOMED training facilities are appropriate for the intensity and length of the training.***
- ☐ ***Investigate the feasibility of an 18D precourse.***
- ☐ ***Develop policies to reduce instructor burnout.***

needs analysis identified this as a potential area for study, and, in later discussions, experts at USAJFKSWCS emphasized the need to support mission understanding, effective solution development, and planning flexibility. In response, ARI proposed to identify problems related to mission analysis, identify factors related to performance, and develop specific recommendations USAJFKSWCS could use to improve the mission planning portion of qualification training.

To define a manageable piece of research in the context of the broadly stated need, ARI focused on ODA leaders (SF captains) and the mission planning portion of 18A qualification training. USAJFKSWCS staff had considerable input in shaping the research focus and approach to best meet the needs of SF. At their suggestion, researchers focused on the early stage of planning that occurs prior to the mission concept brief and considered only two types of SF missions, special reconnaissance and direct action.

ARI, with support from Human Resources Research Organization, accomplished the project in two phases. During the first or concept formation phase, researchers developed working knowledge of ODA mission planning and the context in which it is performed. Through a structured workshop, researchers gained hands-on experience performing planning procedures and discussed mission planning with experts. They subsequently interviewed current active duty ODA commanders, detachment technicians, and opera-

tions sergeants to broaden their understanding of the planning process. They observed portions of the SF officer qualification course pertaining to mission planning. Finally, they interviewed and surveyed trainers and training managers who have close contact with the training process, including observer/controllers at the Joint Readiness Training Center (JRTC). The observations, interviews, and surveys helped researchers characterize instruction in ODA planning skills and identify problems in performing mission analysis and planning activities.

Phase two involved reviewing archival data from the JRTC and unobtrusively observing actual ODA planning during a JRTC rotation. Data analyses involved summarizing qualitative observations, deriving quantitative descriptions where possible, and describing notable trends in the data. The data collected from JRTC indicated that about half the observed missions in our sample were weak in mission analysis, and a clear majority were weak in intelligence preparation of the battlefield. Importantly, we were able to characterize effective and ineffective planning, reporting the tendencies of "strong" and "weak" ODA teams engaged in the planning process. Finally, we developed specific recommendations for institutional training at USAJFKSWCS. The training implications addressed training content and training methods. Example recommendations are shown in Table 5.2 (see also Morrison, Smith, Sticha, & Brooks, 1995).

Table 5.2. ARI recommendations for improving the mission planning portion of SF qualification training.

Training Content

- ☐ Provide increased instruction in planning for NCOs.
- ☐ Include training in agenda setting and monitoring.
- ☐ Provide ample practice and feedback on problem recognition/representation.
- ☐ Provide practice on course-of-action development and evaluation.
- ☐ Provide training on team decision making and communication.

General Training Methods

- ☐ Design exercises that provide more direct, hands-on experience in mission analysis and planning activities.
- ☐ Provide frequent feedback during the planning process.
- ☐ Sequence training to build logically on the skills and knowledge possessed by the trainee.

Specific Training Methods

- ☐ Employ part-task training methods to bridge classroom training and isolation exercises.
- ☐ Incorporate simulation, where appropriate.
- ☐ Follow part-task training with dual-task or multiple-task training.
- ☐ Adjust the realism of training based on the level of training.

The findings and recommendations were briefed to the Director, Directorate of Training and Doctrine for USAJFKSWCS and to the Chief, Special Operations Division of JRTC, for their consideration and use in fine-tuning the mission planning aspects of SF qualification training.

Using New Technologies to Support Language Instructional Development

SF soldiers need foreign language skills to conduct missions or activities such as foreign internal defense, unconventional warfare, or humanitarian assistance. For this reason, they receive language instruction as part of qualification training. However, foreign language skills are notoriously perishable, and maintain-

ing readiness in critical languages is difficult. Costly sustainment, such as intensive instructor time or expensive stays overseas, is impractical for all needed languages. Although computer-based language tutors offer a potential solution, conventional tutors cannot enable realistic communicative practice, such as spoken and written dialogue.

In view of language sustainment problems in SF, military intelligence, and elsewhere in the Army, ARI developed a technologically advanced authoring system to support foreign language training development. This project, a cooperative effort with the Defense Advanced Research Projects Agency and the DOD Office of Special Technology, has so far resulted in the development of an initial system called Military

Language Tutor (MILT) (see Holland & Kaplan, 1995; Kaplan & Holland, 1995). In brief, MILT is a tutor authoring system and testbed for the development and investigation of advanced technologies for language learning and maintenance. It runs on a Pentium-based personal computer and currently supports development of tutorials in Arabic and Spanish. Prototype exercises developed in MILT demonstrate state-of-the-art authoring capabilities.

A critical feature of MILT is its capability for natural language processing. Its major software engine is a natural language processor (NLP) that can analyze language form as well as meaning. Typically, computer-based language tutors focus on listening and reading skills. By employing NLP, MILT can address production skills. That is, users can freely create language as in the real world, and the system responds by carrying out

commands or answering questions. Syntactic parsers, semantic analyzers, and artificial intelligence components allow MILT to recognize language as well as to generate its end of a dialogue in a realistic way. Moreover, unlike typical tutoring systems, the NLP component of MILT is able to determine why an answer is wrong and identify the type of mistake that was made. This feature allows the tutor to adapt a lesson as it is going on, giving additional help to poor students and allowing good students to advance to more challenging exercises.

Researchers also designed the authoring system for ease of use. The goal was to build a system that would require no formal training and could be learned within 4 hours by instructors who were familiar with the Windows environment but had no programming experience. Most of the authoring system was based

MicroWorld with Voice Recognition

Exercise # 1 Exercise Name: Unnamed

Introductory Directions Type:

☒ Text Question: [Text Area]

☐ Oral Question File Name: [Text Field] Find... Record

Answer: [Text Area]

Number of Tries Allowed: 1 [Dropdown]

Parser Feedback More...

Edit Speech Text... Edit Scene View Exercise

OK Cancel Help

Figure 5.2. Initial authoring template for creating a microworld.

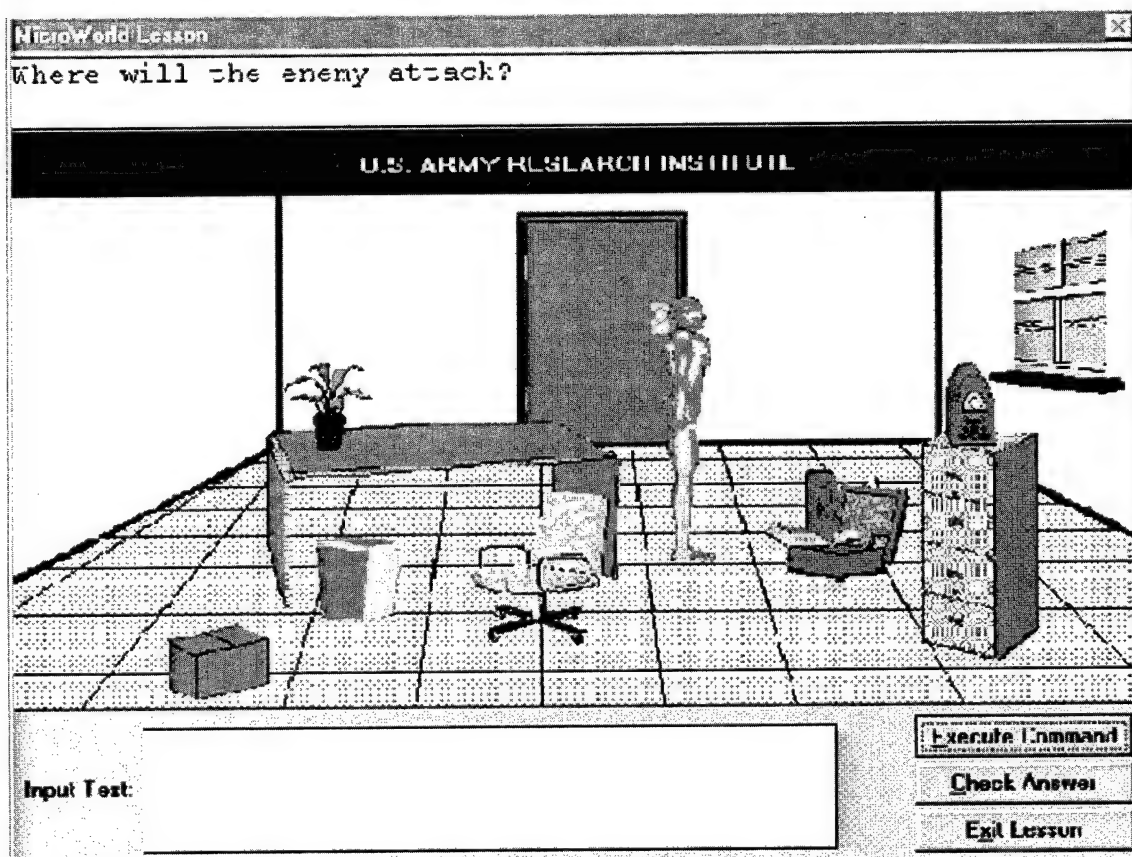
on a template approach. In this approach, the course designer selects a type of question, and the system displays a template for that question type. The template has windows or fields for various kinds of designer input, and buttons or check boxes by which the designer chooses from alternatives (e.g., sound versus text presentation of the question). Figure 5.2, for example, shows an initial authoring template for creating a graphical immersion exercise (called a microworld).

SF soldiers were among the first to use and evaluate prototype language training exercises developed in MILT. Because they have already received language training, SF soldiers are more likely to use a language tutor for optional self-study

than as part of a formal program of instruction. The exercises were therefore designed to be interesting enough that students would want to use them on their own time and explore the tutoring environment beyond the basic exercises. The underlying learning principle was that soldiers who use language (or other cognitive skills) to the point of over-learning will better retain those skills.

Using advanced authoring system tools, researchers designed the exercises to be intrinsically rewarding by allowing students to use language production to manipulate a graphics microworld in order to solve realistic problems. In this way, users are immersed in environments that simulate the ways they are required to use language on missions. A student sees

Figure 5.3.
Typical MILT1
Microworld
exercise screen
with open book
about to be read.



a graphic scene and enters a natural language command. If the entry is correct, the student is rewarded by seeing his command executed in the microworld. If it is incorrect in a way the NLP and animation can deal with, the student sees the results of his errors take place in the microworld. If the entry is incorrect in ways that can be identified but not displayed, the NLP and tutor tell the student about his errors and invite him to continue. Figure 5.3 shows an example of a microworld screen.

This research program continues to evolve in response to lessons learned and the availability of new technologies. The next generation system will introduce continuous speech recognition to allow users to speak to the tutor in a target language. A future stage will incorporate a virtual reality environment to give users a full sense of immersion in another culture. In a virtual reality language tutor, users will be able to explore the cultures and locations of areas in which they are likely to operate and can engage modeled people in task-oriented dialogues in target languages.

Supporting Cultural Communication Skills

Foreign language skills, though clearly needed by SF soldiers, are by themselves insufficient for effective mission accomplishment. Members of SF must be able to communicate with people whose language is different, but also whose cultures are very different from our own. They must understand the basis for their own

behavior and for the behavior of others with whom they interact. To do this, they must be trained concerning cultural differences. Problems associated with this kind of training have largely stemmed from an inability to define cultural differences systematically, particularly within a given operational context. Moreover, time limitations and the potential number of cultures within which SF soldiers may be asked to operate add to the training challenge. Thus, USAJFKSWCS needed to develop a method for systematically and rapidly identifying the specific cultural communication skills and behaviors that soldiers will need for specific cultures and operational requirements. At the request of USAJFKSWCS, ARI served as the contracting officer's technical representative for a project designed to address this important need (see Hannaman, 1997a, 1997b). Our research partners were Human Resources Research Organization and the North Carolina Center for World Languages and Culture.

The first major objective of the research was to develop the methodology for identifying cultural communication skills specific to a particular culture and a specific SF mission. The approach was to develop a generic template for describing any culture and its associated behaviors. Now fully developed, the generic template is essentially an elaborately structured outline containing over 900 notional behaviors or skills. Importantly, it proved to be an effective tool and interview protocol for developing culture-specific templates. Using the generic template, researchers devel-

oped three culture-specific templates with prioritized or "weighted" behavior lists. A templating approach was also used to identify and weight the key elements of selected SF missions (foreign internal defense and unconventional warfare). Finally, a cross-walk was employed to link mission element weights to culture weights that, when combined and sorted, produced lists of behaviors prioritized for training.

A second major objective was to develop, deliver, and evaluate two courses of instruction built on the research findings. One course, designed for instructors and training developers, was an overview of the templating methodology and how it was applied to a sample culture and mission. The other, a 6-hour course designed for SF soldiers deploying to Oman to train Omani police in counter-insurgency, showed that the prioritized list of behaviors developed through this method was amenable to the Army's instructional systems development approach for training development. Both courses were delivered at USAJFKSWCS and evaluated to be effective.

A key advantage of this approach is that it can help SF commanders and training managers make informed decisions to focus training directly on those behaviors most critical to mission success. Application of the approach would also help ensure consistency among training courses offered by various cultural subject matter experts, reducing distortions caused by individual experts' subjective biases and personal interests.

Finally, the approach offers considerable promise in other contexts, such as supporting language training, structuring area studies and analytical efforts, revising curriculum with cultural training components, and developing culturally-specific computer-aided instruction.

Summary and Conclusions

Training research in support of USAJFKSWCS focused on enhancements to SF qualification training as opposed to fundamental change. Early in our research partnership, ARI responded to specific requests for assistance in areas considered weak--the SOMED portion of medical sergeant training and the mission planning portion of officer qualification training. In both cases, researchers approached the problem by directly observing training and collecting and analyzing data from multiple sources to clearly define the issues and begin identifying solutions. Researchers' understanding of well established principles of learning and instruction further guided the formulation of sound, practical recommendations for training improvements in both areas.

As the SF training community's focus later shifted toward foreign language and cultural communication skills, ARI helped provide new technologies for supporting these skills. For example, ARI's state-of-the-art tutor authoring system can understand language, engage students in dialogues, adapt to student performance, and be easily changed by

instructors. Moreover, future versions that will incorporate continuous speech recognition and virtual environments offer considerable promise for supporting mission planning and rehearsal.

The methodology for identifying needed cultural communication skills is especially useful for soldiers who have little time to train prior to deployment to an unfamiliar culture. Even if soldiers have little or no foreign language capability, they can benefit from training in those cultural communication skills and behaviors that are important for accomplishing a particular mission. The templating approach offers one solu-

tion for quickly identifying needed skills in a specific culture and mission context and prioritizing those skills for training.

Although the tutor authoring system and templating method were largely developed in a SOF context, they are applicable to other Army elements that will need to interact with host nationals, coalition forces, or other military or civilian personnel from different cultures. In particular, the cultural communication skills are becoming increasingly relevant to the rest of the Army as stability operations such as humanitarian assistance and peacekeeping activities become more frequent.

Training Enhancements: Recommendations for the SF Community

- ☐ Continue to track and monitor 18D training attrition patterns and manpower projections to inform training policy decisions.
- ☐ Document which of the training recommendations for SF medical sergeants and ODA leaders were implemented. For those not implemented, identify the reasons and reevaluate, as appropriate.
- ☐ Continue to be involved in, and have input to, development of future generation language tutor authoring systems that will incorporate speech recognition and virtual environments. Anticipate and plan for the use of these emerging technologies to support SF mission rehearsal.
- ☐ Maximize the benefits of language sustainment tools by developing exercises that allow SF soldiers to practice their foreign language skills in the context of realistic job duties such as teaching, negotiating, or providing medical care.
- ☐ Apply the newly developed templating method to additional cultures and missions relevant to SF. Having a library of culture- and mission-specific templates on hand will shorten the time required to identify and train essential cultural communication skills needed by SF soldiers deploying to unfamiliar locations.
- ☐ Train cultural subject matter experts in the templating approach to help reduce distortions in course content that are caused by subjective biases or personal interests.

Training Enhancements: Recommendations for the Army

- ☐ Collect and analyze high quality training attrition data that allow assessment of attrition patterns and changes, particularly for high cost training programs. Use the analysis findings to shape training-relevant policies.
- ☐ Investigate the findings and approach of the SF mission planning research for applicability to small unit leaders elsewhere in the Army.
- ☐ To support language skill sustainment in Army linguists, take advantage of advanced authoring system technologies that support development of tutorials involving realistic communicative practice.
- ☐ Ensure the motivational aspect of language tutoring systems by immersing users in environments that simulate the ways they will be required to use language on missions.
- ☐ Identify areas other than foreign language training that could benefit from the powerful authoring tools embodied in MILT.
- ☐ Reduce development costs of any new NLP applications for the Army by leveraging multilingual resources (e.g., lexicons, syntactic parsers, language generation capabilities) available across the Department of Defense community.
- ☐ Identify Army missions that require cultural communication skills and consider using the templating method to specify and prioritize the key elements of those missions for linkage to culture-specific behaviors. Leverage resources (e.g., generic and culture-specific templates) available in the SF community to support cultural communication skills training.

Special Forces Soldiers in the Field

by Marisa Diana, Robert N. Kilcullen, and Gerald F. Goodwin

Thus far, we have highlighted the research that has contributed to improved SF recruiting and manpower planning, prescreening, assessment, and training. From a broader perspective, the ultimate goal has been to enhance the effectiveness of soldiers in the field. It is the performance of soldiers in the field, on the SF ODAs, that largely defines SF's success. Equally important for success is the organization's ability to retain its high performing soldiers. Ideally, high performers would choose a full career in

Analysis of the performance ratings revealed that there were very few "poor" performers in SF.

SF. Rigorous examination of SF job requirements, soldier performance, and soldier attitudes in the field can provide vital information for maximizing performance and minimizing attrition from the force.

ARI has pursued two lines of research involving soldiers in the field. The first has emphasized soldier performance on the job. Effective performance is clear-

ly of interest to SF, as is identifying potentially successful SF soldiers early on, during recruitment and assessment. How does SF define effective performance? What individual characteristics are likely to predict how well a soldier will perform on the job? To address these questions, ARI applied scientific methods to measure soldiers' performance in the field, and to identify those individual attributes associated with high job performance. The advantages of identifying the individual characteristics critical to field performance are substantial, and ultimately could enhance troop readiness and performance through better recruitment, selection, and training programs.

The second line of research has focused on the organizational climate in SF. The SF community invests con-



siderable financial, material, and personnel resources into the recruitment, selection, and training of its soldiers. Moreover, SF, as well as the Army in general, incurs substantial costs when soldiers choose to leave the force prior to retirement, including costs associated with the loss of soldiers' knowledge and expertise. The fact that only one in four candidates ultimately earns the SF tab further speaks to the importance of retaining these exceptional performers. SF expressed considerable interest, therefore, in "taking the pulse" of the force, as one way of informing decisions and policies designed to retain SF soldiers.

Examining both the performance and retention of soldiers, this chapter highlights our research approach to investigating soldiers in the field, specifically addressing the following issues:

- ☐ What are SF soldiers expected to do on the job?
 - ☐ How can we measure SF job performance?
 - ☐ Which individual attributes predict SF job performance?
 - ☐ What is the overall climate and morale in the SF community?
 - ☐ What are the primary concerns of SF soldiers today?
 - ☐ How can we interpret the results of the SF Command Field Survey?
- In the following sections we focus first on soldiers' performance in the

field, then shift attention to the climate in SF and retaining the force.

Predicting SF Job Performance

This section describes ARI's research effort to scientifically examine the relationship between individual characteristics of SF soldiers and their performance on the job. This was a three-step process. First, we determined what SF soldiers are expected to do on the job by identifying specific tasks and duties that captured the essence of their jobs. Second, we developed job performance measures that assessed performance in the task categories identified in Step One. Third, we measured a wide range of individual attributes (e.g., motivations, abilities) and designed a way to examine which attributes were related to SF job performance.

Step 1: Identifying what SF soldiers are expected to do. As a starting point for measuring soldiers' field performance, we examined various aspects of the SF soldier's job to define the primary tasks required. We gathered important information about SF tasks, duties, and responsibilities. In short, we conducted a job analysis covering each of the four entry-level enlisted MOS and two SF officer positions (Russell, Crafts, Tagliareni, McCloy, & Barkley, 1996).

We generated a comprehensive list of tasks common to all SF soldiers, as well as those specific to each MOS. We worked collaboratively with USAJFKSWCS to group these

tasks into "task categories" that effectively reflected the primary work demands within each MOS and for officers. These categories captured the essence of SF soldiers' jobs (see Table 6.1). To determine the relative importance of each category, experienced SF soldiers then rated how important each category was for MOS-specific and SF-common field performance.

In addition, these experienced soldiers provided ARI with specific examples of poor, average, and exemplary performance in each of the task categories. These examples, or critical incidents, provided a brief

description of a situation, the soldier's actions in that situation, and the result of those actions.

As shown in Table 6.1, researchers identified 26 categories of critical performance that were reflected in 11 broad-based roles in SF. These performance categories reveal precisely what SF soldiers are expected to do on the job. Identifying these dimensions was the first step toward building performance assessment tools and identifying the characteristics that best predict job performance in SF.

Table 6.1.
Special Forces
roles and job
performance
categories.

Role	Performance Categories
Teacher	A. Teaching Others
Diplomat	B. Building and Maintaining Effective Relationships with Indigenous Populations C. Handling Difficult Interpersonal or Intercultural Situations D. Using and Enhancing Own Language Skills
Professional	E. Contributing to the Team Effort and Morale F. Showing Initiative and Extra Effort G. Displaying Honesty and Integrity
Planner	H. Planning and Preparing for Missions I. Decision Making
Soldier/Survivor	J. Confronting Physical and Environmental Challenges K. Navigating in the Field L. Troubleshooting and Solving Problems M. Being Safety Conscious N. Administering First Aid and Treating Casualties
Administrator	O. Handling Administrative Duties
Weapons Expert	P. Operating and Maintaining Direct-Fire Weapons Q. Employing Indirect-Fire Weapons and Techniques
Engineer	R. Employing Demolitions Techniques S. Constructing for Mission-Related Requirements
Communications	T. Following Communication Procedures and Policies U. Assembling and Operating Common Equipment
Medic	V. Evaluating and Treating Medical Conditions and Injuries W. Determining and Administering Medications and Dosages X. Ensuring Standards of Health-Related Facilities, Conditions, and Procedures
Leader	Y. Considering Subordinates Z. Providing Direction

Step 2: Developing a measure of soldier performance in the field.

The SF job performance categories identified in Step 1 served as the basis for developing SF performance rating scales. A separate rating scale was developed for each SF performance category, and the critical incidents generated in Step 1 were used to illustrate low, average, and high levels of performance within each rating scale. The performance rating scales reflected performance specific to each MOS, as well as performance critical to all SF soldiers. Figure 6.1 illustrates two examples of the scales we used in our research.

The rating scales were designed to minimize three types of errors that often interfere with obtaining accurate performance ratings. First, they ensure that each rater evaluates the soldiers on the same categories of performance. In other words, the same 'yardsticks' are used to assess each soldier. Second, because only those categories critical to SF field performance are used, evaluations based on irrelevant factors are minimized. Third, inconsistency between raters in terms of what is meant by 'low,' 'average,' and 'high' performance within each category is minimized by illustrating

A. Teaching Others

How effective is each soldier in the teaching of others?

	Loses control over training environment or loses audience attention. Neglects to obtain or organize training materials. Appears to lack sufficient knowledge of the system/weapon being trained.			Uses techniques to maintain attention of the audience during presentations. Plans or adapts POIs appropriately. Is knowledgeable of system/weapons etc.			Creates novel approaches to capture and hold audience attention. Plans POIs and uses training aids that are well suited to the needs of the target audience. Demonstrates own technical expertise.		
--	--	--	--	---	--	--	--	--	--

Line up the names of the soldiers you are rating with the rows at the right	1.	1	2	3	4	5	6	7
	2.	1	2	3	4	5	6	7
	3.	1	2	3	4	5	6	7
	4.	1	2	3	4	5	6	7
	5.	1	2	3	4	5	6	7
	6.	1	2	3	4	5	6	7
	7.	1	2	3	4	5	6	7
	8.	1	2	3	4	5	6	7

Figure 6.1. Performance rating scale examples.

each level of performance with behavioral examples.

These behaviorally-anchored rating scales are potentially useful for several purposes. First, they can help SF make more informed decisions about who to promote, who to dismiss, who requires additional training, and what specific training is required. Second, when aggregated, the ratings can provide a handy assessment of troop readiness and, as such, can help SF evaluate the impact of organizational interventions on field performance. Third, the rating scales can benefit individual soldiers by giving them a better

understanding of exactly what is expected of them, and how they could improve. Finally, as a research tool, the rating scales are particularly valuable for permitting us to investigate the relationship between individual attributes and SF field performance.

Step 3: Examining individual attributes that predict SF job performance. To determine what types of characteristics were most related to job performance in SF, ARI first identified which attributes were likely to be associated with SF performance, then developed measures of these attributes. Researchers collabo-

Figure 6.1.
Performance
rating scale
examples
(continued).

B. Building Effective Relationships with Indigenous Populations								
How effective is each soldier in the teaching of others?								
	Overlooks or avoids opportunities to build relations with locals. Lacks awareness of or respect for the culture (e.g., complains about or refuses to eat local food).			Helps indigenous persons when need is obvious. Is knowledgeable about and demonstrates respect for local culture, values, and customs (e.g., eats local foods).			Discovers the needs and desires of local personnel and takes steps to satisfy them. Applies knowledge about local culture and customs to identify with locals and predict their behavior.	
Line up the names of the soldiers you are rating with the rows at the right	1.	1	2	3	4	5	6	7
	2.	1	2	3	4	5	6	7
	3.	1	2	3	4	5	6	7
	4.	1	2	3	4	5	6	7
	5.	1	2	3	4	5	6	7
	6.	1	2	3	4	5	6	7
	7.	1	2	3	4	5	6	7
	8.	1	2	3	4	5	6	7

rated with SF personnel to identify the 'best bet' attributes for predicting SF job performance. This involved generating a lengthy list of cognitive, psychomotor, physical, and personality attributes. This list was then reviewed and revised by SF soldiers in the field, who judged the importance of each attribute for overall SF performance and for performance in specific SF jobs. Attributes rated highest in importance for overall SF performance included team playership, maturity, dependability, judgment, decision making ability and adaptability.

To measure these characteristics, we identified which attributes were already measured in SF and developed measures for those attributes not previously assessed. Several measures already existed to assess cognitive abilities. Spatial ability was measured using the Assembling Objects test, which measures the ability to process information about form, direction, orientation, and path. Two other important cognitive attributes, general intelligence and language proficiency, were measured using the participants' ASVAB and Defense Language Aptitude Battery (DLAB) scores from SFAS records.

We also developed two biodata instruments to measure the motivation, character, and interest attributes that were identified by soldiers in the field as being important to SF performance. Biodata instruments measure individual characteristics by asking questions about the test-taker's past behavior and reactions to life events. Previous experience reveals that bio-

data tests accurately measure many motivational attributes (Kilcullen, White, Mumford, & Mack, 1995) and that these tests can be strong predictors of on-the-job performance (Kilcullen, White, Mumford, & O'Connor, 1995).

Another area of interest entailed exploring the relationship between performance in SFAS and actual field performance. Specifically, we empirically explored whether SF job performance could be predicted by SFAS performance in physical fitness tests (e.g., data on ruckmarches, runs, obstacle course performance, APFT scores), SFAS cadre ratings, and various military experience variables (Ranger qualified, years in the Army, etc.). Table 6.2 shows a complete listing of the predictors of SF field performance.

Once the 'best bet' attributes were identified and measured, we were ready to examine in a scientific manner how these attributes relate to SF job performance. To do this, we collected data on over 300 enlisted soldiers assigned to active SF Groups. We then collected SF job performance ratings from the participants' immediate superiors or their superiors-once-removed using the performance rating scales described in Step 2. We also collected a second criterion which consisted of a self-report measure of foreign language proficiency.

Analysis of the performance ratings revealed that there were very few 'poor' performers in SF. This meant that the attributes which successfully predicted SF field perfor-

Table 6.2. Possible predictors of SF performance.

<p>Spatial/Cognitive Attributes</p> <p>Assembling Objects (spatial ability)</p> <p>ASVAB</p> <ul style="list-style-type: none"> General Technical Combat Electronic Field Artillery Surveillance/Communication Skilled Technical <p>Wonderlic (IQ test)</p> <p>Audio Perception Test</p> <p>Defense Language Aptitude Battery</p> <p>Test of Adult Basic Education</p> <ul style="list-style-type: none"> Language Mechanics Math Grade Level Reading Grade Level Vocabulary Grade Level 	<p>Outstanding Ratings from Cadre (multiple dimensions plus total)</p> <p>Peer Ranking of Leadership Potential</p> <p>Peer Rating Score</p>
<p>Military Experience/Demographic Characteristics</p> <p>Age</p> <p>Airborne</p> <p>Basic NCO Course</p> <p>GED</p> <p>Platoon Leader Development Course</p> <p>Ranger</p> <p>Years of Education</p> <p>Years of Army Service</p> <p>Branch Type (CA, CS, CSS)</p>	<p>Motivational Attributes / Other Characteristics</p> <p>Social Intelligence: the ability to read the motives, feelings, and intentions of others</p> <p>Pre-SF Evaluation: indicates how a soldier's pre-SF superiors view him based on his pre-SF performance</p> <p>Cultural Adaptability/Flexibility: a curiosity about other cultures and a willingness to respect their customs</p> <p>Diverse Friends: have a variety of different types of friends with different backgrounds</p> <p>Fitness Motivation: the desire to maintain good strength and cardiovascular conditioning through regular aerobic and weight training exercise</p> <p>Swim: skill at swimming</p> <p>Organizational Identification: the tendency to personally identify with organizations to which one belongs</p> <p>Work Motivation: the proclivity to commit time and energy towards work-related activities and to strive for success in one's work</p> <p>High School Leader: history of participation as a leader in school sponsored activities (e.g., sports, clubs, student government) while in high school</p>
<p>Physical Attributes</p> <p>Long-Range Movement (time and rating)</p> <p>March (time and rating)</p> <p>Military Orienteering Events (times and ratings)</p> <p>Obstacle Course (time and rating)</p> <p>APFT Rating</p> <p>APFT Total Score</p> <ul style="list-style-type: none"> Pushup Score Run Score Sit-up Score <p>Pull-up Score</p> <p>Short Run (time and rating)</p> <p>Medium Run (time and rating)</p> <p>Long Run (time and rating)</p> <p>Swim Test Results</p>	<p>Openness/Cognitive Flexibility: comfort with uncertainty and a willingness to explore new ways of achieving objectives</p> <p>Outdoor Orientation: participation in and enjoyment of rugged, outdoor activities</p> <p>Mechanical Aptitude: skill in using tools or in making, operating, and repairing machines</p> <p>Team Orientation: a preference for working with others and a willingness to assist teammates</p> <p>Object Belief: the degree to which the person is self-serving and deceitful when dealing with others</p> <p>Autonomy: the desire to be independent of others and to work alone</p> <p>Aggressiveness: a tendency to engage in physical confrontations with others</p> <p>Anxiety: the tendency to become nervous/upset and to lose composure under pressure</p>
<p>SFAS Cadre and Peer Ratings</p> <p>Unsatisfactory Ratings from Cadre (multiple dimensions plus total)</p>	

mance would be those that distinguished between 'average' and 'excellent' performers.

We are currently examining which individual attributes are related to SF job performance. To date, only preliminary analyses have been performed. However, these analyses suggest that the best predictors of SF job performance are the motivational attributes (e.g., Work Motivation, Openness/Flexibility) assessed by the paper-and-pencil biodata instruments. Some of the SFAS cadre ratings also appear to predict SF job performance. A comprehensive report that discusses these findings and their implications in detail is forthcoming. These results, which are derived from a thorough, scientific validation approach, will contribute substantially to our knowledge of what is most useful for predicting SF performance in the field and will assist SF in making informed decisions for improving SF selection and training.

Examining the Command Climate in SF: The SF Command Field Survey

In addition to soldiers' performance in the field, USAJFKSWCS and USASFC(A) requested ARI's assistance in assessing the overall command climate in the SF community. ARI developed the SF Command Field Survey to "take the pulse" of the force. The survey was designed to assess overall morale in SF, determine the primary concerns of SF soldiers today, and identify the key factors

impacting soldiers' desire to leave the force. The next sections describe our approach for planning, designing and administering the SF Command Field Survey, as well as interpreting and disseminating its results.

Clarifying project goals. ARI's initial efforts were geared towards collaborating closely with USASFC(A) leaders so that we fully met SF's needs, understood the constraints in SF which might impact the project, and had the full support of senior leaders throughout the SF organization. Our discussions brought into focus the primary goals of the SF Command Field Survey, which were to: (1) investigate specific issues in order to guide future decisions and policies, (2) identify the specific concerns of soldiers throughout the force; and (3) provide soldiers with a vehicle for communicating their concerns to SF leadership. During initial collaborations with USASFC(A) leaders, we established protocols for guaranteeing the anonymity of soldiers' responses, briefing USASFC(A) and USAJFKSWCS commanding officers, and providing the SF soldiers themselves with candid feedback from the survey.

The importance of providing soldiers with honest feedback should not be overlooked. ARI's up-front promise to supply such feedback, a commitment supported fully by the USASFC(A) Commanding General, appeared to elicit candor from soldiers who completed the survey, overall support and enthusiasm for the survey, and, perhaps most importantly, an effective communication

channel between soldiers and their leadership.

Development of the SF Command Field Survey. ARI collaborated with those command units and SF personnel who would most directly use the results of the survey for organizational diagnosis and change. Focus groups and interviews were conducted with USASFC(A) and USAJFKSWCS leaders, SF personnel managers at U.S. Total Army Personnel Command, and, of course, SF soldiers themselves. The following issues were identified as critical for the survey:

- ☐ the impact of heightened deployment schedules, or operations tempo (OPTEMPO), on soldiers and their families
- ☐ the quality and availability of individual and team training
- ☐ soldiers' satisfaction and attitudes toward their jobs, missions, and leadership in SF
- ☐ overall climate and morale within the SF community
- ☐ primary factors influencing a soldier's desire to leave SF

The focus groups provided a wealth of information about soldiers' concerns, and enabled us to develop specific survey questions that focused directly on the heart of soldiers' most salient issues. Thus, the survey questions actually engendered considerable enthusiasm and support for the project, as soldiers felt that researchers were truly seeking their opinions.

ARI developed a scannable survey that addressed each of the research issues described above. The survey allowed for both breadth in its coverage of the issues and considerable depth in its emphasis on some of the particularly central issues. In total, it tapped 10 areas of soldiers' experiences in SF, ranging from their career plans and concerns to deployments/time spent away from home, to family status and concerns. In addition to multiple choice questions, ARI included two open-ended questions that asked "What do you enjoy most about SF?" and "What is your biggest disappointment or dissatisfaction with SF today?" These questions provided soldiers with the opportunity to candidly express their concerns directly to their leadership and allowed us to obtain specific anecdotes or incidents to clarify soldiers' responses in the survey.

The SF Command Field Survey: Who participated? The research project was designed to capture the opinion of every SF soldier. However, soldiers above the rank of Major were excluded from the sample, since they would have been easily identifiable within each SF Group. It was important that the opinions of soldiers from each SF Group be adequately represented in the SF Command Field Survey research project. Thus, ARI and SF developed procedures for confidentially tracking soldiers to identify groups of soldiers that were underrepresented within each SF Group. This tracking was particularly critical in light of the different deployment and training

schedules that existed in different ODAs, Companies, and Battalions.

ARI representatives administered most of the surveys on site at each SF Group. Collecting surveys in person enabled us to verbally ensure soldiers that their individual responses would remain completely anonymous, and that they would receive feedback from the survey. A total of 3,042 soldiers, representing approximately 65% of the SF force, completed the SF Command Field Survey. Of those who completed the survey, approximately 90% responded to the two open-ended questions at the end of the survey. This high response rate suggests a great deal of support from the soldiers, and attests to their confidence in the survey as a vehicle for voicing their concerns to their leaders. Table 6.3 gives a brief description of the demographic background of the survey respondents.

Soldiers' responses: The voice of the SF soldiers. Soldiers' responses revealed both their tremendous pride as members of the SF community, and their frustrations with their jobs, missions, and SF today. Even their frustrations, however, reflected the passion they have for truly making a difference in the world. SF soldiers thrive on risk, autonomy, and the opportunity to travel and experience foreign cultures. They considered their peers to be among the best in the Army--highly competent and professional soldiers. The overwhelming majority reported that they successfully accomplished their most recent missions, a finding which attests to the commitment and perseverance of these soldiers.

The vast majority of soldiers indicated they were glad they joined the SF force. Soldiers reported being most motivated by exciting, meaningful, and challenging work, the oppor-

Table 6.3.
Demographic
background of SF
Command Field
Survey respon-
dents.

Total Sample (N=3,042)			
<u>Rank</u>		<u>Assignment</u>	
Officer	339 (11%)	Tng Gp	279 (9%) (5 OCONUS)
Warrant Officer	207 (7%)	1st Gp	477 (16%) (139 OCONUS)
SGT/SSG	876 (29%)	3rd Gp	684 (22%) (8 OCONUS)
SFC	1214 (40%)	5th Gp	479 (16%) (7 OCONUS)
MSG/1SG	336 (11%)	7th Gp	497 (16%) (58 OCONUS)
SGM/CSM	59 (2%)	10th Gp	462 (15%) (73 OCONUS)
		Other	152 (5%) (290 OCONUS)
<u>Enlisted: Current MOS</u>		<u>Current Assignment</u>	
18B 458 (18%)	18E 492 (20%)	SF ODA	1816 (60%)
18C 384 (16%)	18F 333 (14%)	Co/Bn HQ	549 (18%)
18D 406 (16%)	18Z 395 (16%)	Other	648 (22%)

tunity to exercise initiative and autonomy, and the opportunity for professional growth. Soldiers' responses clearly reflected their belief that these opportunities are available in SF more so than elsewhere in the Army. The challenge, autonomy and meaningful work have been among SF's greatest allures for volunteers.

Nonetheless, soldiers also have some dissatisfactions in SF. In general, soldiers' responses reflected a perceived loss in those qualities they initially found most attractive in SF. Soldiers reported frustration with the perceived micromanagement, a lack of emphasis on team-directed training, and excessive paperwork and administrative tasks. These frustrations appeared to be grounded in their more global perceptions that SF has placed too little emphasis on supporting the ODAs, and has lacked confidence in its soldiers' abilities to make effective decisions. Specifically, the 'zero defect mentality,' pervasive throughout the Army since the recent draw-down, was commonly cited as a problem by soldiers.

Soldiers also expressed considerable concern with the perceived lack of emphasis on ODA-generated training. Compounding this problem was the perception that (a) when it was scheduled, ODA training was often disrupted or canceled, and (b) increasing paperwork, "red tape," and support taskings were obstacles to scheduling and actually conducting team training. As reflected in soldiers' comments, these concerns have contributed to their perception that many leaders are not looking out for

the best interest of the ODA, nor do they understand its needs.

Soldiers' complaint that officers spend very limited time assigned to an ODA contributed to their perceptions that there is a lack of attention to the ODAs' needs and concerns. Soldiers believe that ODA Team Leader experience provides officers with invaluable insight into the SF ODA. The Commanding General, USASFC(A) has subsequently issued a policy extending the required tour length of ODA Commanders to 24 months to "ensure that the critical ODA experience needed by CMF 18 officers is attained."

Soldiers did not express serious concern with a heightened operations tempo (OPTEMPO) rate. Instead, soldiers' concerns focused on the financial repercussions of frequent deployments, especially the retraction of separate rations. Soldiers actually desired more time to "do their jobs;" that is, to train hard and perform their missions. They joined SF to deploy, and enjoyed doing so, provided they perceived the missions to be challenging and meaningful. This speaks to soldiers' concern about the types of missions assigned, and the way SF troops were being utilized in general. It also underscores the continual challenge faced by senior leaders of meeting the mission requirements imposed by ever-changing political forces, and communicating those requirements to the troops.

Interpreting and using the results of the SF Command Field Survey. In addition to reporting the

survey results, ARI has offered a possible framework for their interpretation. That is, we have examined soldiers' concerns in the context of SF as an organization that has, in the last decade, undergone considerable change. There have been major organizational changes, including the establishment of USASOC as a major command in 1989. Moreover, increased national and international visibility, Army-wide budgetary constraints, and changing political and military environments are factors likely to have shifted the nature of the force and the types of demands placed on SF soldiers today.

Soldiers who joined the community in earlier times experienced a very different SF than soldiers joining today. In fact, approximately half of the soldiers responding to the survey joined SF prior to 1990 and, consequently, experienced considerable changes in the organization. These changes have often frustrated both leaders and soldiers alike, and may underlie some of soldiers' concerns with their jobs and missions.

In our view, the field survey results provide vital information. SF leaders can consider each of the key issues that have emerged, using soldiers' responses to identify areas where policy or procedural changes can improve the effectiveness and efficiency of the organization. For example, while an increase in paperwork and administrative tasks may have been inevitable as SF has grown, soldiers' frustration with this burden suggests it may be time to enhance the efficiency of the system.

The trend toward an increased bureaucracy may also have impeded effective internal communications. Soldiers in the field may not recognize the efforts the command has made to support the ODAs. For example, soldiers' frustration with the reduction in the number of military freefall (MFF) and combat dive qualified (CDQ) teams in SF and the consequential loss in opportunity to receive special training, was met with a new Command policy opening MFF and CDQ course opportunities to all SF soldiers, rather than to only the few assigned to the appropriate special skill ODA. Also, SF Command has offered an Education Incentive Program for soldiers seeking higher levels of education.

Another possibility is that soldiers' concerns had not previously moved up the chain of command to those who can respond effectively. Though the Command is likely to be aware of the primary concerns of its soldiers, the SF Command Field Survey has provided an overall glimpse of the depth and breadth of soldiers' most salient concerns. It is a good starting point for developing and evaluating organizational innovations to minimize these problems in the future.

Summary and Conclusions

A major portion of the research pertaining to SF soldiers in the field focused on job performance. By clearly defining what is meant by effective performance on an ODA, we identified specific types of behaviors required in SF and developed a mea-

sure designed to explicitly assess field performance. Measurement of soldiers' effectiveness in the field provided guidelines for identifying skills and abilities that are important for high performance in SF.

We identified attributes likely to be associated with SF job performance and generated measures of those attributes. The new performance measures, in conjunction with the attribute measures, allowed us to examine in a scientific manner how individual attributes relate to SF job performance. The results, still under analysis, will contribute substantially to our understanding of what is most useful for predicting SF field perfor-

mance and will help SF leaders make informed decisions for improving SF selection and training programs. For example, selection procedures could be improved by considering performance-related characteristics not currently assessed, and training could be improved by developing individualized programs that target specific deficiencies.

Recruiting, selecting, and training high performing soldiers clearly enhance the effectiveness of the force. Nonetheless, the attitudes and concerns of SF soldiers are also important from an organizational standpoint, and they impact force retention. The other major portion of

Soldiers in the Field: Recommendations for the SF Community

- ☐ Use measures of individual characteristics that predict SF job performance in SFAS to help assess candidates.
- ☐ Identify which skills critical for SF field performance can be trained, and incorporate methods for training these skills in the SFQC.
- ☐ Use measures of critical attributes as diagnostic tools to guide self-development or training of SF incumbents.
- ☐ Follow up research on predicting individual SF job performance with research on predicting team (ODA) performance.
- ☐ Continue to collect field performance data to allow for longitudinal analysis of the best predictors of SF performance in the field.
- ☐ Form a task group to develop a prioritized list of soldiers' most salient concerns, identify the potential underlying causes of the concern, and generate potential solutions.
- ☐ Continue to collaborate with researchers to identify the most salient concerns of soldiers within each SF Group; Group Commanders can use this insight to inform policy and procedural changes where appropriate.
- ☐ Provide soldiers with continued feedback on survey results; keep soldiers apprised of relevant actions taken in response to their concerns.

our research on SF soldiers in the field, therefore, involved the development, implementation, and analysis of an SF Command Field Survey to assess overall morale, determine soldiers' concerns, and identify factors affecting soldier attrition.

Survey responses reflected the great pride soldiers take in being members of the SF community. Soldiers reported enjoying the challenge and responsibility they derived from their work, and, in fact, wanted more time to train for and perform the "typical" SF missions. Their greatest frustrations, however, were grounded in those aspects of SF that

detracted from their opportunity for exercising autonomy and initiative, or that appeared irrelevant to performing their missions.

SF soldiers invested considerable time and effort in responding to the survey, believing that it addressed critical issues and enabled them to communicate their concerns directly to their leaders. The SF Command Field Survey has provided USASFC(A) with candid and specific feedback about the experiences, attitudes, and perceptions of its soldiers, giving SF the opportunity to continue to enhance the effectiveness and efficiency of its force.

Soldiers in the Field: Recommendations for the Army

- ☐ Assess whether the individual attributes measured herein can be used to predict performance in Army units where soldiers operate in small, highly trained groups.
- ☐ Evaluate how scientifically developed performance rating scales and individual attribute measures can be used to provide soldiers with feedback on their job performance and their relative standing on critical attributes; evaluate how this information can be used to guide individualized strategies for improvement.
- ☐ Consider how measures of individual attributes can be used to identify junior soldiers with high potential for advancement.
- ☐ Consider adopting the methodologies used in the development and distribution of the SF Command Field Survey when seeking candid and specific feedback about the experiences, attitudes, and perception of soldiers in other Army units.
- ☐ Determine the applicability of the issues which emerged in the SF Command Field Survey to the rest of the Army.

Future Directions

by Michael G. Sanders, Michelle M. Zazanis, and Marisa Diana

ARI's research with SF has spanned every step of the life cycle of the SF soldier, from the recruitment of soldiers for SF through their retention or attrition from the force. Each chapter of this book has offered an overview of our collaborative research efforts in the different phases of the SF life cycle, as well as recommendations for specific actions to enhance the systems addressed in the research.

Both narrow and broad-based efforts are necessary for identifying research needs and designing interventions to maximize the effectiveness of SF personnel and organizations.

Our research was conducted based on SF concerns and requests, and different SF personnel were collaborators across the projects. Some projects were very narrow and specific, such as research questions on the usefulness of cognitive ability test-

ing in the SF selection process. Other projects, such as the SF Command Field Survey, began to address much broader organizational issues. Although broad-based research efforts sometimes require more time and effort, it is critical to adopt a broad perspective on organizational issues and to use tools such as performance data and surveys to identify potential problem areas within SF organizations. Both narrow and broad-based efforts are necessary for identifying research needs and designing interventions to maximize the effectiveness of SF personnel and organizations.

In this chapter, we identify possible directions for future research, building on the work that ARI and SF have already accomplished. We discuss the importance



of integrating information from the different phases of the life cycle, and discuss future research directions in areas such as screening, assessment and selection, and training. From a broader Army standpoint, we also consider how the Army that is envisioned for the future may influence SF as well as SOF-wide research directions, and benefit from SF research methods and findings.

An Integrated Research Approach

The SF selection and training system is designed to select soldiers from the available pool of applicants and train them to perform effectively on SF ODAs. In defining future research directions, it is important to consider the entire system, using information from each aspect of the system to inform decisions made about other aspects of the system.

It is also important to consider the influence of change on our research, and the need to respond to new challenges. The world map is constantly changing, and some SF mission requirements, of course, change with it. In addition, the applicant pool to SF has been changing. For example, fewer higher ranking soldiers attend SFAS now than at the inception of the program. With changes to the soldiers who are entering the system and changes to the mission requirements for SF, the selection and training system at USAJFKSWCS will also need to change.

Because many of the elements in the SF recruiting, selection, and training process are so dynamic, it is challenging to maintain a constant flow of the most qualified candidates into SFAS. It is critical that we develop an integrated prediction model that merges information from all of the stages of the system, establishing not only probabilities for successful completion of SFAS and SFQC, but also probabilities for successful performance in the field. This integrated approach, or "Whole Soldier" model, must be able to account for all components that are essential in predicting performance.

The Foundation for an Integrated Model

The SF assessment and selection research conducted to date serves as a foundation for future research which will produce predictive models of successful SF soldiers. As discussed in the previous chapter, the SF job analysis identified the critical aptitudes and abilities required for successful field performance (see Special Forces Soldiers in the Field for a detailed description). This is the first critical step necessary to develop the integrative model. A later report was produced to serve as a "road map" for implementation and evaluation of this process (Russell, Rohrbach, Nee, Crafts, Peterson, & Mael, 1995).

The next step is to identify the tests and measures that successfully predict performance in SFAS, SFQC, and on SF ODAs. As discussed in pre-

vious chapters of this report, relationships between physical, cognitive, motivational, and special aptitude measures and success in SFAS and SFQC have been established. Other research using biodata measures (e.g., "Work Motivation, Fitness Motivation") has shown promising results in predicting SFAS outcomes and field performance as well. This research needs to be expanded to include a broader base of performance data from SFQC and soldiers in the field.

Developing an integrative database. One of the most important components of the development of this integrative model is the development of a longitudinal performance-tracking database. In FY 95, ARI created a longitudinal database that contained several years of SFAS and SFQC data. Currently, the USAJFKSWCS Psychologist and ARI are updating and expanding the database to include current SFAS and SFQC data as well as field performance data. The resulting database will be one of the most comprehensive longitudinal performance-oriented databases available. This database will be ideal for research on selection and assessment and the development of a "Whole Soldier" model.

This longitudinal database will also be able to address questions regarding specific issues such as attrition in SFAS. Research analyses are needed when there are major shifts in the incoming soldiers and the attrition patterns in SFAS. Having a longitudinal database will facilitate quick-response research to address some of

these changes and to identify possible directions or remedial actions. Refining and modifying elements of the recruiting process based on these changing elements in the system will require continuing research and close work with the Special Operations Proponency Office and SF Recruiting Office at USAJFKSWCS.

Expanding assessment tools. The "road map" report describes existing tests and measures that tap the aptitude dimensions required to be a successful SF soldier. Many of these aptitudes can be assessed with paper and pencil tests that can be administered prior to or during SFAS. However, some of the aptitudes are best assessed in Situational Performance Tests (U.S. Office of Strategic Services, 1978). Situational Performance Tests are ideal for addressing complex interpersonal characteristics such as teamwork and leadership. Future work will address the continued development of appropriate Situational Performance Tests for potential use in SFAS and SFQC. Not only could these tests provide data for selection during SFAS, but they could also provide excellent information for professional development of SF candidates in SFQC.

Refining training. As mentioned earlier, field performance assessment is needed to provide feedback for refining and improving the selection and assessment model. Data on field performance could be evaluated in a manner that would illuminate common strengths and deficiencies. These data could be used as feedback for training pro-

gram improvements. Future research could address approaches and techniques for individual and team field performance assessment with the Directorate of Training and Doctrine at USAJFKSWCS.

Greater uses of simulation and simulation technology for training could also be a part of the SOF future. The potential for research exists in the development and evaluation of prototype training systems that could augment and support existing training. A potential starting point could be a review of future SOF training requirements, with an overlay identifying the places where simulation technologies could be applied best.

Identifying organizational issues. Commanders in the SF and larger SOF communities are aware of the usefulness of the survey as a tool for identifying and diagnosing needs within their organizations. In addition to the SF Command Field Survey, ARI has performed Command Climate surveys for the Joint Special Operations Command (JSOC) each year for the past three years. A Command Climate survey was also conducted for the USASOC headquarters in 1997, with an agreement to perform the survey and analysis on an annual basis. The information collected in these surveys was used by the different commands as the basis for action plans which targeted needed organizational changes. In some cases, the survey data were the basis for the creation of Process Action Teams which initiated remedial actions. This entire process illustrat-

ed the positive impact of using survey data as a basis for coordinated command level actions to improve the work environment and effectiveness of units. These and other tools will be used in the future, with SOF Commanders, to address broader organizational issues.

Army After Next: SOF as a test bed. One of the most significant directions for future work involves preparing for the Army After Next (AAN). Although the projected roles and missions for SOF during AAN may not depart drastically from the current roles and missions, there will be some shifts in emphasis. Projections for 2020 indicate a much higher percentage of the world population will live in an urban environment, and therefore many more SOF missions will probably occur in urban environments. This potential shift in focus could necessitate some modifications to soldier requirements and training.

The AAN projections for the conventional forces suggest that combat will involve smaller groups of geographically isolated soldiers, performing independently with state-of-the-art combat gear. Many of these projections seem to parallel the current state of operation of SOF soldiers. The lessons learned in SOF should generalize to the conventional Army. SOF can, therefore, serve as an excellent research test bed to address many issues. These issues range from command and control in geographically dispersed groups, to leader development, to team cohesion and interdependence, to the degree

of cross training and specialization required for effective mission performance.

Conclusions

SOF has some of the best selection and training programs in the world. Their dedication to excellence produced these programs and developed the collaborative relation-

ship with ARI that enables us to perform research that helps to continuously improve these programs. The concepts above describe some of the work that could be performed over the next few years. ARI stands ready to assist SOF in performing research on any personnel, training, and organizational issue deemed critical for continued effectiveness of SOF in the performance of its missions.

References

Brady, E. J., & Brooks, J. E. (1993). *Prior service soldiers in the Special Forces Assessment and Selection program: Recruitment issues* (ARI Research Report 1646). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Brooks, J. E. (1991). *A research needs analysis for U.S. Army Special Operations Forces: Interim report* (ARI Research Report 1600). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Brooks, J. E. (1992). *A research needs analysis for U.S. Army Special Operations Forces: Final report* (ARI Research Report 1631). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (For Official Use Only)

Brooks, J. E. (1994, October). A realistic job preview for Special Forces. *ARI Newsletter*, 16, 12-13.

Brooks, J. E. (1995, May-June). Special Forces research program: Enhancing manpower and personnel effectiveness in the 90s. *Army RD&A*, 3, 44-46.

Brooks, J. E., & Evans, W. E. (1996). *Evaluation of a realistic job preview for U.S. Army Special Forces* (ARI Research Report 1699). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

DeMatteo, J. S., White, L. A., Teplitzky, M. L., & Sachs, S. A. (1991, October). *Relationship between temperament constructs and selection for Special Forces training*. Paper presented at the annual meeting of the Military Testing Association, San Antonio, TX.

Diana, M., Teplitzky, M. L., & Zazanis, M. M. (1994). *FY 89-92 Special Forces Qualification Course longitudinal database: Technical manual and codebook* (ARI Research Product 94-14). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Diana, M., Teplitzky, M. L., & Zazanis, M. M. (1995). *Special Forces Qualification Course graduation and attrition statistics for soldiers selected for training in FY 89-FY 91* (ARI Technical Report 1023). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Graham, S. E. (1994). *Analysis of Special Forces Medic (18D) attrition* (ARI Research Report 1665). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

References

Hannaman, D. L. (1997a). *Cultural communication skills training for Special Forces personnel conducting a foreign internal defense mission in the Sultanate of Oman* (Contractor Report). Alexandria, VA: Human Resources Research Organization.

Hannaman, D. L. (1997b). *Methods to improve cultural communication skills in Special Operations Forces* (Contractor Report). Alexandria, VA: Human Resources Research Organization.

Herd, A. M., & Brooks, J. E. (1993). *Information needs of enlisted soldiers when making a Special Forces career decision* (ARI Research Report 1648). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Herd, A. M., & Teplitzky, M. L. (1992). *Special Forces recruiting: An overview of current procedures and issues* (ARI Research Report 1626). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Holland, V. M., & Kaplan, J. D. (1995). Natural language processing techniques in computer-assisted language learning: Status and instructional issues. *Instructional Science*, 23, 351-380.

Kaplan, J.D., & Holland, V. M. (1995). Application of learning principles to the design of a second language tutor. In V. M. Holland, J. D. Kaplan, and M. R. Sams (Eds.), *Intelligent Language Tutors: Theory Shaping Technology* (pp. 273-287). Mahwah, NJ: Erlbaum.

Kilcullen, R. N., White, L. A., Mumford, M. D., & Mack, H. (1995). Assessing the construct validity of rational biodata items. *Military Psychology*, 7, 17-28.

Kilcullen, R. N., White, L. A., Mumford, M. D., & O'Connor, J. A. (1995). *Predicting the effectiveness of public sector supervisors using biodata*. Paper presented at the tenth annual meeting of the Society of Industrial and Organizational Psychology, Orlando, FL.

Lappin, M. L. (1996, August). *Evaluating the impact of cognitive ability test cutoff scores*. Paper presented at the annual meeting of the American Psychological Association, Toronto, Canada.

Morrison, J. E., Smith, D. H., Sticha, P. J., & Brooks, J. E. (1995). *Planning in the Special Forces operational detachment alpha* (ARI Research Report 1672). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

References

Russell, T. L., Crafts, J. L., Tagliareni, F. A., McCloy, R. A., & Barkley, P. (1996). *Job analysis of Special Forces jobs* (ARI Research Note 96-76). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Russell, T. L., Rohrback, M. R., Nee, M. T., Crafts, J. L., Peterson, N. G., & Mael, F. A. (1995). *Development of a roadmap for Special Forces selection and classification research* (ARI Technical Report 1033). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Teplitzky, M. L. (1991). *Physical performance predictors of success in Special Forces Assessment and Selection* (ARI Research Report 1606). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Teplitzky, M. L. (1992). *Minority representation in the enlisted Special Forces* (ARI Research Report 1629). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Teplitzky, M. L. (1993, October). Preparing recruits for Special Forces assessment and selection. *ARI Newsletter*, 13, 6-7.

U. S. Office of Strategic Services (1978). *The assessment of men*. New York: Rinehart & Company, Inc.

Zaccaro, S.J., Zazanis, M.M., & Diana, M. (1993). *Methods for the assessment and evaluation of individual performance in team settings* (Final Report). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Zazanis, M.M. (1995, December). *Peer evaluations in SF Selection and Training* (Recommendations Report). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Zazanis, M.M. (1996a, January). *Student evaluations of the SFQC (Phase I) environment (196)* (Information Paper). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Zazanis, M.M. (1996b, February). *Pull-up scores in Special Forces Assessment and Selection* (Information Paper). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Zazanis, M. M. (1997, July-August). Enhancing Special Forces: A different kind of technology demonstration. *Army RD&A*, 4, 41-42.

References

Zazanis, M.M. (in review). *Predicting performance ratings using motivational antecedents* (ARI Technical Report). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Zazanis, M. M., Diana, M., & Teplitzky, M. L. (1994). *FY 89-92 Special Forces Qualification Course class database: Technical manual and codebook* (ARI Research Product 94-15). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Zazanis, M. M., Teplitzky, M. L., & Diana, M. (1994). *Special Forces Qualification Course class attrition statistics Fiscal Year 1989 - Fiscal Year 1992* (ARI Research Report 1664). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

List of Acronyms

ABLE	Assessment of Background and Life Experiences
AIMC	Advanced International Morse Code
APFT	Army Physical Fitness Test
ARI	U.S. Army Research Institute for the Behavioral and Social Sciences
ASVAB	Armed Services Vocational Aptitude Battery
CDQ	Combat Dive Qualified
CMF	Career Management Field
DLAB	Defense Language Aptitude Battery
FA	Field Artillery, a subtest of the ASVAB
GT	General Technical
JRTC	Joint Readiness Training Center
JSOC	Joint Special Operations Command
MFF	Military Freefall
MILT	Military Language Tutor
MOS	Military Occupational Specialty
NCOs	Non-Commissioned Officers
NLP	Natural Language Processor
ODA	Operational Detachment Alpha

List of Acronyms

OPTEMPO	Operations Tempo
POIs	Programs of Instruction
SF	Special Forces
SFAS	Special Forces Assessment and Selection
SFQC	Special Forces Qualification Course
SOF	Special Operations Forces
SOMED	Special Operations Medical Sergeants Course
STAR	Situation, Task, Action, Result
USAJFKSWCS	U.S. Army John F. Kennedy Special Warfare Center and School
USAREC	U.S. Army Recruiting Command
USASFC(A)	U.S. Army Special Forces Command (Airborne)
USASOC	U.S. Army Special Operations Command
USSOCOM	U.S. Special Operations Command

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